

Running head: AN ANALYSIS OF A DUAL-ELIGIBLE POPULATION

**An Analysis of a Dual-Eligible Population at
Reynolds Army Community Hospital, Fort Sill, Oklahoma**

Captain Noel J. Cardenas, Medical Service Corps

Administrative Resident

Reynolds Army Community Hospital, Fort Sill, Oklahoma

U.S. Army-Baylor University

Graduate Program in Health Care Administration

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I have finished the race,
I have kept the faith."**

2 Timothy 4:7

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Abstract

In October 1993, the Department of Defense (DoD) adopted the program known as TRICARE, which failed to incorporate the 1.2 million over 65 dual-eligible beneficiaries. Consequently, these dual-eligible beneficiaries were forced to utilize their Medicare benefits or receive care at DoD medical treatment facilities on a space available basis. In April 1996, Reynolds Army Community Hospital, Fort Sill, Oklahoma developed the Silver Care Program. The goals of the program were to educate the dual-eligible population on both Medicare and the Medicare Demonstration Project known as Medicare Subvention and to provide health care to beneficiaries who were unable to obtain care through civilian providers. The continuance of this program was dependent on financial assistance from higher command and the possibility of rolling the program into the Medicare Demonstration Project. The purpose of this study was to analyze utilization and costs of inpatient and outpatient services of the dual-eligible populations ($N = 2216$) from April 1996 – December 1997. The study entailed two analyses: a historical utilization and cost analysis and the employment of a health status and patient satisfaction survey. The first analysis revealed that the total cost of health care for the dual-eligible population was \$6.69 million dollars. The survey results revealed a significant statistical difference, [$F(1, 233) = 282.845, p < .0001$], in overall satisfaction between Silver Care enrollees and space available beneficiaries, with the Silver Care enrollee being most satisfied. In addition, a backward linear regression was conducted in order to determine predictor variables for the dependent variables: inpatient bed days and outpatient visits. The predictor variables for bed days were health status and patient satisfaction with $F(2, 231) = 9.763, p < .001$, and $R^2 = .078$. The predictor variables for outpatient visits were age, health status and patient satisfaction with $F(3, 230) = 21.479, p < .001$, and $R^2 = .219$.

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Introduction

The Military Health System (MHS), with its beneficiary population of approximately 8.2 million people and an annual budget of \$15.4 billion, is one of the country's largest and most complex health care delivery systems. The MHS operates approximately 115 military hospitals and medical centers and 471 medical clinics throughout the world and employs 147,100 military personnel and civilians. The MHS has a dual mission. First, the MHS provides medical services to our nation's active duty forces in the Army, Navy, Air Force, Marines, Coast Guard, Commissioned Corps of the Public Health Service, and the National Oceanic and Atmospheric Administration (1997 Regional Health Services Plan, 1997, Lanier & Boone, 1993, & Boyer & Sobel, 1996). Second, the MHS furnishes medical services to the dependents of active duty personnel, military retirees and their family members and to those designated to receive care in a Department of Defense (DoD) medical treatment facility (MTF) (Boyer and Sobel). The law, known as the *Dependents Medical Care Act* created this dual mission. Congress enacted it in 1956. This Act, commonly known as Public Law 84-569 or Title 10, United States Code, authorized "space available care" to active duty dependents and retirees and their family members in MTFs (*Dependents Medical Care Act, 1956* & *Military Health Care for Retirees, 1996*). The Act was amended in 1966 by the *Military Medical Benefits Amendments* (Public Laws 89-614 and 89-94) which implemented a program known as the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). CHAMPUS is a U.S. government program, for other than active duty members, which cost shares with eligible beneficiaries for medical services received through civilian medical sources due to non-availability of space or services in a DoD MTF. DoD

beneficiaries are eligible for CHAMPUS until age 65; at which time they are encouraged to enroll in the Medicare Program. These beneficiaries are commonly referred to as "dual eligibles" because they may choose to seek care through the Medicare Program and/or on a space available basis at a DoD MTF (Badgett, 1990).

Conditions which prompted the study. An issue surrounding the dual-eligible population is their priority for care among the other beneficiary categories. The focus of the MHS is to maintain the readiness posture of the active duty force. Consequently, the first priority of the MHS is to care for the active duty soldier (1997 Regional Health Services Plan, 1997).

Subsequent to the active duty soldier, priority of care in DoD MTFs reflects the following order:

1. Active duty dependents
2. Retirees and their family members
3. Medicare eligible retirees and their family members

In the 1980s approximately 9.2 million beneficiaries were supported by the MHS.

Because of this large beneficiary population, the demand for services far exceeded the capabilities of the DoD's health care system. Consequently, the DoD shifted the excess demand for health care by its beneficiaries to CHAMPUS (Gisin & Sewell, 1989). As noted earlier, CHAMPUS provides DoD beneficiaries, except for active duty members and Medicare eligible retirees, with a method for receiving low cost care through civilian health care providers and facilities. The beneficiaries, over age 65, were not included in CHAMPUS because of their Medicare eligibility. However, most dual-eligible beneficiaries continue to seek care in DoD MTFs because of their positive experience with the military health care delivery system, the high costs of civilian health care and the limited benefits associated with Medicare (TROA, 1996).

The end of the Cold War has fostered numerous changes and reform initiatives to the military health care program. The changes include budget reductions and constraints, base realignments and closures (BRAC) and the introduction of managed care. The CHAMPUS program has undergone four major reforms in an effort to reduce the DoD's health care budget, in particular CHAMPUS expenditures. For example, in a period of eight years (FY 81 to FY 88), medical costs in the DoD escalated from \$5.7 billion to \$12.5 billion. Over the identical period, the CHAMPUS expenditures jumped from \$850 million to \$2.4 billion (Gisin & Sewell, 1989). The CHAMPUS reforms include the Catchment Area Management Project, CHAMPUS Reform Initiative, Gateway to Care and the latest initiative, TRICARE. TRICARE is the consolidation of the military health care delivery systems and CHAMPUS; in an effort to efficiently appropriate the resources of military medicine. The TRICARE Program offers a triple option benefit structure that includes TRICARE Prime, TRICARE Extra and TRICARE Standard. TRICARE Prime is a health maintenance organization (HMO) like option. TRICARE Extra is a preferred provider organization (PPO) like option and TRICARE Standard is equal to the current CHAMPUS Program. The TRICARE program is available to active duty soldiers and to those eligible for CHAMPUS (Policy Guidelines for Implementing Managed Care Reforms in the Military Health Services System, 1996). A primary flaw with TRICARE is its failure to incorporate the Medicare eligible population. Consequently, the dual eligible population of approximately 1.2 million retirees must continue to rely on the Medicare Program and/or space available care in DoD MTFs (TROA, 1996).

On August 1, 1997, Congress approved the Medicare Demonstration Project, known as the TRICARE Senior Program. This Program is a joint project between the DoD and the Department of Health and Human Services (DHHS). The project will consist of six MTF

demonstration sites that will act as Medicare at risk HMOs. The goal of the program is to provide greater access to the dual-eligible beneficiaries currently receiving care in the MHS. The project is scheduled to begin with an enrollment phase starting on February 1, 1998, followed by a health care delivery start date of April 1, 1998 (TRICARE Senior Handbook, 1997 and Chapter 20, Medicare Subvention Demonstration, 1997).

The implementation of TRICARE brought turmoil to a population that depends heavily on the MHS as a means for primary health care - the Medicare eligible beneficiaries. Reynolds Army Community Hospital (RACH), Fort Sill, Oklahoma continued to provide space available care to its dual eligible population which in most cases equated to episodic care. In November 1995, RACH implemented TRICARE which limited the number of space available appointments to dual-eligible beneficiaries. Consequently, in April 1996, RACH developed the Silver Care Program which was aimed at assisting the Medicare eligible beneficiaries with their transition to Medicare and the civilian medical community (Crandall, 1996). The program was expected to terminate in October 1996; however, due to its implied success with the dual-eligibles allowed in the program, support from the Army's Great Plains Regional Medical Command and the pending approval of RACH as a TRICARE Senior demonstration site, the Silver Care Program continues at RACH (S. Hale, personal communication, October 27, 1997).

Question Statement. The command and staff at RACH feel strongly about its selection as a TRICARE Senior Program demonstration site. The consideration of RACH as a site can be attributed to its success in implementing its Silver Care Program. However, many question whether the TRICARE Senior Program was a cost effective and beneficial program for the DoD. Hence, a study of a dual-eligible population at RACH can assist in resolving part of the bigger

puzzle. Is the primary and limited specialty care provided to dual-eligible beneficiaries enrolled in RACH's Silver Care Program a viable alternative to space available care?

Literature Review. The care provided to DoD beneficiaries, minus active duty soldiers, is outlined in two important pieces of legislation, the *Dependents Medical Care Act of 1956* and the *Military Medical Benefits Amendments of 1966*. The purpose of the *Dependents Medical Care Act of 1956* was to create and maintain the morale of members of the uniformed services by providing them and their dependents with medical care. The care provided to dependents in DoD MTFs was to be on a "space available basis" (*Dependents Medical Care Act, 1956*). The *Military Medical Benefits Amendments of 1966* created the health benefits program that is now commonly referred to as the "CHAMPUS Program" (*Military Medical Benefits Amendments, 1966*). This program allowed beneficiaries to seek medical treatment through civilian resources due to limited space, non-availability or geographical location of MTFs (Military Health Care for Retirees, 1996). The CHAMPUS Program excluded Medicare-eligible beneficiaries because they are entitled to care under Title XVIII of the *Social Security Amendments of 1965*, also known as the Medicare Program. It is estimated that approximately 50,000 beneficiaries lose their CHAMPUS and TRICARE benefits each year because they reach age 65 and are forced to utilize the less-generous Medicare benefits (Maggrett, 1996). The primary differences between Medicare and CHAMPUS are the costs associated with receiving care and the benefits provided. CHAMPUS, now TRICARE Standard, is a non-premium health care delivery program which requires eligible beneficiaries to pay deductibles and copayments. On the contrary, Medicare eligible beneficiaries who seek civilian care face a health care delivery system that requires monthly premiums for Medicare Part B, provides limited benefits (e.g. no pharmacy coverage), and requires deductibles and copayments. Consequently, Medicare beneficiaries routinely seek space available care to

obtain additional benefits and to offset excessive health care costs. However, as the MHS continues to undergo budgetary cuts, hospital closures, and health care delivery changes, the Medicare eligible beneficiary is finding that space available care is diminishing. Which raises questions along the lines of lack of commitment, broken promises and moral obligations to the retiree population. Many retirees feel that a promise was made, at the time of their enlistment, for a lifetime of medical care in return for their career commitment to the military service (Military Health Care for Retirees, 1997). Furthermore, the promise of life long health care is still utilized by recruiters and reenlistment personnel as a method of retaining an active force (Burelli, 1991).

The initial intent of the CHAMPUS Program was to augment the DoD's health care delivery system by providing care to eligible beneficiaries who were unable to receive care in an MTF (Boyer & Sobel, 1996). The program was a safety net for approximately 7 million eligible beneficiaries (Fant & Pool, 1990). The funds secured for this program were provided by Congress through annual appropriation acts for the DoD and the DHHS and then later disbursed by a government office known as OCHAMPUS (Boyer & Sobel). Consequently, CHAMPUS created dual health care systems for the MHS. The first consisted of the direct care system that was funded by the DOD through the individual military departments. The second system was CHAMPUS which received its funding directly from the DoD budget (Badgett, 1990).

CHAMPUS quickly became an over-utilized method of receiving health care. For example, MTF commanders often encouraged the use of CHAMPUS to reduce overcrowding in their facilities. In addition, MTF commanders relied on the CHAMPUS program as a means for reducing internal budgets. Moreover, Commanders lowered their direct care costs by shifting costs to CHAMPUS (GAO, 1993). This over-utilization of the CHAMPUS program resulted in a dramatic rise in the DoD's health care costs. For example, from 1980 to 1990 CHAMPUS expenditures rose

approximately 350 percent. This figure differed considerably from national health care costs that increased by only 166 percent. By the same token, the DoD's inability to predict the dramatic rise in CHAMPUS costs, perpetuated a \$3 billion dollar shortfall from the late 1980s and early 1990s (1997 Regional Health Services Plan, 1997). In order to alleviate the rapid health costs, Congress initiated a number of demonstration projects and programs in an effort to reform the CHAMPUS Program.

In 1988, Congress approved a demonstration project known as Catchment Area Management (CAM). Under the CAM project, the CHAMPUS budget for a particular catchment area was dispersed to the MTF commander for the catchment area. A catchment area is defined as a 40-mile radius surrounding an MTF. The funds dispersed to a commander were in addition to the funding already received for the normal operating budget (Badgett, 1990). The MTF commander was now responsible for the CHAMPUS and direct care system expenditures utilized to provide care to DoD beneficiaries living within the MTF's catchment area (Boyer & Sobel, 1996). The care included both military and civilian care. MTF commanders could use the funds to increase or expand services, hire additional providers, contract services or enter into resource sharing agreements. Beneficiaries who were normally seen by civilian providers were required to use the MTF. The primary objectives of this project were to decrease CHAMPUS costs, increase access and satisfaction and maintain the quality of health care (Badgett).

The CAM Project had two major drawbacks. First, the Project failed to account for beneficiaries who did not live within an MTF's catchment area. These individuals, commonly referred to as non-active beneficiaries, accounted for approximately 50 percent of CHAMPUS admissions. In many cases these beneficiaries travel hundreds of miles in order to receive health care at a DoD MTF. Secondly, smaller MTFs were unable to solve the traditional problem of

limited services. For example, smaller MTFs were unable to provide the full spectrum of services required by their beneficiaries which resulted in reduced access to medical procedures and higher health care costs through civilian providers (CBO, 1993).

The second demonstration project utilized to reform CHAMPUS was the CHAMPUS Reform Initiative (CRI). "The CRI was a demonstration program designed to improve CHAMPUS' efficiency through competitive selection of a financially at-risk contractor to underwrite delivery of CHAMPUS health care services" (Boyer & Sobel, 1996, p. 781). The primary goals of the CRI were to contain the DoD's health care costs and to improve beneficiary satisfaction. Most importantly, CRI provided the DoD with a method of integrating the civilian and military health care systems and introduced the MHS to managed-care programs (Hosek, Anderson, Dixon, Thomas, Zwanziger, Blake, Polich, Rahman, Bamezai, 1990). The contract was awarded to Foundation Health Corporation and the demonstration projects began in 1988 in California and Hawaii (Gisin & Sewell, 1989). The role of the contractor, Foundation Health Corporation, was to serve as both the CHAMPUS administrator and as the provider. The contracted price was based on the number of outpatient visits and civilian facility inpatient days. The contract was an at-risk contract which meant that the contractor was responsible for any cost overruns. Moreover, the government could reduce its negotiated price if services through the contractor were underutilized (CBO, 1993).

The CRI provided a triple option package that added two alternatives to the original CHAMPUS program. Beneficiaries could use the traditional CHAMPUS program called the Standard Plan or select from the following options: CHAMPUS Prime or CHAMPUS Extra. The three options are outlined below:

1. Traditional CHAMPUS gave beneficiaries the freedom to select their civilian provider and facility; however, the patient was responsible for 20 to 25 percent of the cost (Gisin & Sewell, 1989).

2. CHAMPUS Prime resembled enrollment in an HMO. The patient was required to select a primary care provider from either a civilian provider network or a military treatment facility. Beneficiaries received care in an MTF based on availability of care or pay a copayment for receiving care through the civilian network provider or facility. The advantages for enrolling in CHAMPUS Prime were the lower copayment and the added benefit of preventive services (Fant & Pool, 1990).

3. The CHAMPUS Extra option was compatible to a preferred provider plan. Beneficiaries were given the option to choose their physician, either from within or outside an established network of civilian providers. The advantage to beneficiaries utilizing a physician within a network of providers was a reduction in the copayment from 20% to 15% (Gisin & Sewell, 1989 and Hosek, Goldman, Dixon, & Sloss, 1993).

The CRI Project also incorporated a number of programs and services not available under the traditional CHAMPUS Program. For example, CRI established CHAMPUS Service Centers that were responsible for handling referrals of military physicians to civilian providers. Furthermore, CHAMPUS Service Centers were responsible for employing a marketing staff that informed DoD beneficiaries of their options. However, the most important programs initiated by the CRI were the utilization management and quality assurance programs. The focus of these programs was to ensure beneficiaries were receiving quality care, to prevent unnecessary procedures and to manage expensive treatments (Hosek et al., 1990).

The overall goals of the CRI program were to reduce and control CHAMPUS expenditures and increase patient satisfaction through greater access and quality health care. Overall, patient satisfaction increased with the implementation of CRI; however, it came with a cost. For example, claims cost decreased by 9 percent, while the administrative costs increased by 4.6 percent. The administrative cost increased from \$111 million to \$116 million which was not offset by the decrease in claims cost (Hosek, et al., 1990).

The third demonstration program, Gateway to Care (GTC), was instituted by the Commander of Health Services Command, Army Major General Alcide M. Lanoue in the summer of 1992 (Lanoue, January 1992). GTC was developed based on guidelines set forth in the DoD's Coordinated Care Program. According to Dr. Enrique Mendez, the Assistant Secretary of Defense for Health Affairs (ASD)(HA), "The Coordinated Care Program (CCP) is a Department of Defense initiative designed to provide military treatment facility (MTF) commanders with the tools, authority and flexibility needed to better perform the health care/medical mission" (Policy Guidelines on the Department of Defense Coordinated Care Program, 1992). The goals of the CCP and GTC were to improve access and ensure quality to beneficiaries. However, the principle goal of GTC was to decrease health care costs associated with the CHAMPUS program and its unsuccessful reforms, CAM and CRI (B. Mallory, personal communication, October 28, 1997). GTC provided MTF commanders with the tools necessary to bring services and enrollees back into the MTF which would reduce health care costs. The success of this program was based on the implementation of seven essential elements and three goals. The seven essential elements consisted of: enrollment, utilization management, outcomes study and management, primary care case manager and focus, local design and implementation, specialty treatment facilities and regions of excellence, and marketing and education. The successful implementation of these

elements would yield three primary goals: to maintain quality health care, to improve access and to contain health care costs (Lanoue). In order to implement GTC, commanders were required to determine their MTF's efficiency by developing business plans and analyzing beneficiary population based on catchment areas. This analysis enabled MTF commanders to determine the proper number and mix of providers and the services needed to serve their beneficiaries. MTF commanders were able to determine which services to provide in house, those requiring civilian contracting, and those requiring CHAMPUS. The primary objective of the GTC program was to increase services and providers in order to increase the enrollment and utilization of the MTF, thus reducing CHAMPUS expenditures. The GTC program was replaced in 1994 because of its lack of support by the surgeon generals of the other two services and the implementation of the DoD's managed care program known as TRICARE (D. Heier, personal communication, October 21, 1997).

The CAM, CRI and GTC projects were each aimed at reducing CHAMPUS expenditures. The MHS, similar to other national health care systems, faced the problem of increased costs associated with providing health care. The CHAMPUS program proved unsuccessful at reducing health care expenditures because it was branded as one of the most generous health care programs in the United States (Boyer & Sobel, 1996). Furthermore, access to medical care for beneficiaries continued to plague the MHS despite the number of MTFs in the MHS and the availability of civilian care through CHAMPUS. In fact, beneficiaries, to include dual-eligibles, had problems in obtaining space available care at MTF. Moreover, space available care continues to diminish as the DOD continues its post Cold War downsizing and the implementation of TRICARE reduces the availability of space available appointments for non-enrolled beneficiaries (Maggert, 1996).

Since 1987, the MHS has undergone a number of budgetary cuts, force reductions and BRAC initiatives resulting in the closure of approximately 35 percent of military hospitals. These closures were not in line with the distribution of the beneficiary population which only dropped by nine percent (Your Military Health Plan, 1996). Consequently, the beneficiary, who did not have ready access to an MTF or did not have other health insurance, had to rely heavily on the benefits provided by the CHAMPUS program. This is one of the many reasons why CHAMPUS expenditures increased drastically during the late 1980s. The end result was that many of the CHAMPUS reform projects failed to reduce health care costs (CBO, 1993).

As hospitals began to close and with no foreseeable end to rising health care costs, the MHS began to experience increased problems with beneficiaries accessing their system. Consequently, in October 1993, the DoD provided its commanders with the tools, flexibility and authority they needed to transition into the current health care reform known as TRICARE. These changes included the following:

1. A benefits package was developed which was similar to the three options available under the CHAMPUS Reform Initiative. The following are the managed care options currently available to DoD active duty personnel and CHAMPUS eligible beneficiaries:
 - a. TRICARE Prime is the most restrictive yet most comprehensive health care plan. It is also the plan that provides the lowest cost to the beneficiary. This option is similar to being enrolled in an HMO. Beneficiaries enroll with a Primary Care Manager (PCM). The PCM is responsible for meeting all of the health needs of an enrollee to include coordination of referrals to specialists. Specialty care is conducted either in the MTF or through a network of civilian providers. The cost for enrollment is dependent on the status of the beneficiary. Active duty personnel and their dependents are not required to pay an enrollment fee. However, retirees

are required to pay an annual enrollment fee of \$230 per individual beneficiary or \$460 per family. There are also nominal cost shares for non-active duty beneficiaries who are required to go to network providers for a portion of their care.

b. TRICARE Extra is similar to a PPO option. It serves as a low cost alternative for health care if the enrollee selects a physician from a network of civilian providers. A network physician is a provider who has agreed to provide services at an approved rate. There is no enrollment required for TRICARE Extra; however, beneficiaries are required to pay deductibles and copayments. These costs vary depending on rank and whether the beneficiary is an active duty dependent or retiree and their family member. The advantage of TRICARE Extra over TRICARE Standard is a decrease in the copayment from 20% to 15%. TRICARE Extra enrollees may also seek care in an MTF on a space available basis.

c. TRICARE Standard is the name given to the traditional health care option known as CHAMPUS. Beneficiaries are allowed to seek care with any health care provider or facility. The deductibles and copayments under TRICARE Standard also depend on rank and beneficiary status but are identical to those under the traditional CHAMPUS program. They may also seek care on a space available basis in a MTF.

2. The United States was divided into twelve Health Service Regions. A senior military health care officer called a Lead Agent heads each region. The responsibility for planning, coordinating and monitoring the health care for a particular region currently rests with the lead agents (Boyer & Sobel, 1996).

Lead agents are currently preparing their regions for a new system of receiving resources known as enrollment based capitation (EBC). The implementation of EBC is expected by the start of FY99. Each MTF will receive their allocation of resources based on their number of

TRICARE Prime enrollees. The goal of EBC is to maximize the enrollment of beneficiaries into TRICARE Prime. EBC provides MTF commanders with a certain amount of money per enrollee to manage the health care of their enrolled beneficiary population. Therefore, wellness programs, utilization management, primary care gatekeepers and other health care management techniques are strongly encouraged and required. EBC provides financial incentives for MTFs to properly manage their resources (L. Briggs, personal communication, November 17, 1997).

3. MTF Commanders have transitioned to fixed price, at-risk TRICARE support contracts that provide health care to those not cared for in the MTF and those who have chosen the TRICARE Extra option (Policy Guidelines for Implementing Managed Care Reforms in the Military Health Services System, 1996 & Your Military Health Plan, 1996). As of October 1997, these contracts have been awarded in most of the 12 regions except for Region 1,2 and 5 (N. Cardenas, Notes – Medicare Subvention Convention, 1997).

According to the 1997 Regional Health Services Plan (1997), "TRICARE is intended to ensure a high-quality, consistent health care benefit, preserve choice of health care providers for beneficiaries, improve access to care, and contain health care costs" (p. 5). In order for TRICARE to succeed it must contain costs. The DoD is attempting to manage cost by incorporating civilian managed care practices and ensuring that these practices are similar across the regions. The three keys to containing cost, in a managed care program, like TRICARE, are capitation, utilization management and use of primary care managers (PCMs). First, as noted earlier, capitation will become a part of the MHS in FY98 with the introduction of EBC. EBC will assist in preventing inappropriate hospital admissions, excessive lengths of stay and unnecessary services (Policy Guidelines for Implementing Managed Care Reforms in the Military Health Services System, 1996). Second, the TRICARE Program is required to conduct

utilization management which includes pre-certification, concurrent and retrospective review, case management and discharge planning (GAO, 1995). This process will also assist in preventing unnecessary use of expensive procedures, tests and hospital stays (Policy Guidelines for Implementing Managed Care Reforms in the Military Health Services System). Third, MTF commanders are attempting to assign every TRICARE Prime enrollee to a PCM at the MTF or in the civilian network. The responsibility of this PCM is to provide beneficiaries with preventive care, health education, minor surgery, lab and diagnostic tests, and consultation and specialty referrals. These are procedures provided by PCMs that prevent excessive health care costs (Policy Guidelines for Implementing TRICARE Primary Care Programs in the Military Health Services System, 1995).

There are two major dilemmas surrounding the implementation of the TRICARE Program. First, TRICARE is a health benefits program for the seven uniformed services. In order to be eligible for TRICARE, a beneficiary must be eligible for CHAMPUS. The only exception is active duty personnel who are automatically enrolled in TRICARE Prime. Public Law 89-614, *Military Medical Benefits Amendments of 1966*, which enacted the health benefits program known as CHAMPUS, excluded beneficiaries who were entitled to Medicare under the *Social Security Amendment of 1965*. Therefore the beneficiaries serviced under TRICARE include all active duty members and their dependents, retirees and their family members, and survivors who are not eligible for Medicare (Your Military Health Plan, 1996). Consequently, Medicare eligible retirees must either seek care through a civilian provider utilizing their Medicare benefit or rely on space available care in a MTF.

Medicare eligible retirees or "dual-eligible" beneficiaries fall into one of four categories:

1. Medicare eligible beneficiaries which rely exclusively on the MHS for their care

2. Medicare eligible beneficiaries which use both a civilian provider and the MHS on a space available basis
3. Medicare eligible beneficiaries which use only civilian providers; however, still rely on the MHS for their pharmaceuticals
4. Medicare eligible beneficiaries that utilize civilian providers to meet their entire health care needs (L. Briggs, personal communication, October 27, 1997)

The focus of this research study is on the Medicare eligible beneficiaries that fit into the first two categories of dual-eligibles.

The second major dilemma is the priority of care received at MTFs. Historically, the priority of care has been in the following order: active duty personnel, active duty dependents, retirees and their family members and then Medicare eligible retirees and their family members. However, with the implementation of TRICARE these priorities have changed. The first priority under the TRICARE Program is the active duty soldier. The priority of care there after is to beneficiaries enrolled in TRICARE Prime. All other beneficiaries not enrolled in TRICARE Prime are provided care in MTFs on a space available basis to include the dual-eligible population.

A major issue that is plaguing the MHS is the medical treatment provided to dual-eligible beneficiaries. Medicare eligibles are caught between the MHS, which provides them with space available health care at no cost, and a Medicare program that has limited benefits, high premiums and high out of pocket costs. The Medicare program, similar to the MHS, is facing budgetary cuts. Moreover, the escalating cost of our nation's health care system has pushed the Medicare program to implement health care reforms, such as managed care.

The issue of health care for the elderly has plagued the United States for more than a century. The first recorded effort to establish government financed health care for the elderly

occurred in 1915 and the issue of providing health care to this population continued to trouble the nation for more than 45 years. The predominate issue behind a program for providing medical care to the elderly was whether to privately or publicly finance the program (Health Care Financing Administration (HCFA), 1996). Surprisingly, in 1935 several congressmen led an ambitious effort to make national health insurance a reality by integrating it into the *Social Security Act of 1935*. The proposal drew strong opposition from conservative congressmen and the American Medical Association (AMA). Consequently, President Roosevelt made the decision to remove the proposal based on congressional and political pressures (Williams & Torrens, 1993). In the 1940s and 1950s, private health insurance took the country by storm. It became a method for providing compensation and benefits to employees. The problem with private health insurance was that only the working and upper class could obtain or afford it. This left the non-working population and the elderly without a means for obtaining health care. Consequently, the government again took measures to develop a national health insurance plan during the 1940s aimed at the indigent and elderly. Several bills proposing health insurance for the poor and elderly were discussed and debated by members of Congress; however, not one ever made it to a vote (HCFA, 1996). In 1960, members of Congress proposed four different options for dealing with health care assistance for the elderly. The four options included a contributory, Social Security type of program, a government-subsidized voluntary catastrophic program, an expansion of the existing welfare system that would cover the elderly or do nothing. The first two options did not receive overwhelming support from Congress and the latter received strong opposition because it failed to provide a solution. Therefore, the only acceptable option left was to expand the country's existing welfare program (David, 1985). The bill approved by Congress was the Kerr-Mills Act of 1960 known as the "Medical Assistance for the Aged" (Williams & Torrens). The

Kerr-Mills Act established a program that made it the responsibility of the government to finance the health care of the elderly that were poverty-stricken (David and HCFA). The Kerr-Mills Act was just the first step in developing a publicly funded program that provided medical assistance to the elderly. Congress and the public realized that this Act was only a stepping stone to a more comprehensive health care program for the elderly. In 1965, Congress passed Title XVIII of the Social Security Act which is entitled "Health Insurance for the Aged and Disabled" and known as "Medicare" (HCFA, 1996). Medicare marked the beginning of the government's involvement in providing social health insurance (Williams & Torrens).

Medicare provides medical care to individuals age 65 and older. In 1972, Title XVIII of the Social Security Act of 1965 was amended to include two additional groups, individuals entitled to disability benefits and those suffering from end-stage renal disease (ESRD) (Kaiser, 1995 and HCFA, 1996). Medicare consists of two parts: Medicare Part A and Medicare Part B. Medicare Part A, which is financed through payroll taxes, provides inpatient hospital care, skilled nursing facility care, and home health care. Hospice care was added in 1983. Medicare Part A requires no premiums except for those individuals who have paid less than 40 quarters of Social Security. Enrollees are required to pay deductible and coinsurance payments for inpatient care. The standard deductible for inpatient care is approximately \$760 for each benefit period. Benefit periods vary depending on the type of care received by the patient. For example, the benefit period for skilled nursing care is 60 continuous days. For inpatient hospital care, the benefit period is also 60 days. Moreover, individuals requiring 61-90 days are required to pay an additional deductible payment and coinsurance payments of \$190 per day (HCFA, 1996 and The Federal Register, 1996).

Medicare Part B, which is financed through a combination of federal general fund appropriations and premiums paid by elderly enrollees, provides coverage for physician's services. Individuals wishing to enroll in Medicare Part B are required to pay a monthly premium of \$43.80 and an annual deductible of \$100. Once a patient has paid the \$100 deductible all subsequent physician's fees are subject to a 20% coinsurance payment. However, non-participating physicians can charge an additional 15% above the scheduled Medicare fee which can amount to a 35% coinsurance payment for a patient (HCFA, 1996 and The Federal Register, 1996).

Medicare enrollment has grown substantially over the past three decades. In 1967, Medicare had approximately 19.2 million enrollees. In 1996 the number rose to approximately 38.1 million almost doubling its original enrollment (HCFA, 1996). Why has Medicare enrollment increased so dramatically? Modern medical technology, the aging of the population, and an increase in the number of disabled beneficiaries are all contributing factors (Kongstvedt, 1996). Consequently, Medicare enrollment is predicted to triple by the year 2015, as the "baby-boomers" become eligible for benefits. HCFA reports that the fastest growing groups are the oldest-old (85 and older), the under 65-disabled and the individuals suffering from ESRD (Kaiser, 1995).

Due to an increasing number of beneficiaries, inflation of health care costs and poor management and budgeting, Medicare expenditures have increased at an uncontrollable rate (Kaiser, 1995). With the implementation of Medicare, the shift towards prepaid medical plans and capitated fees slowed dramatically which encouraged proliferation of a fee-for-service health care environment (Kovner, 1995). The result was a dramatic increase in health care costs.

The cost of health care is considered the most crucial weakness of the United States' health care system (Fuchs, 1974). In 1975, the United States spent almost 8% of its Gross National Product (GNP) on health care, making it one of the highest in the world (Geiger, 1975).

Today, however, America's health care cost is approaching 15%, and could reach 18%, of the GNP by the end of the decade (Feldstein, 1994). Medicare expenditures make up a large percentage of the overall health care bill in the United States. It is estimated that Medicare expenditures are approximately 12% of the federal budget (NIHCM, 1995). For example, Medicare expenditures increased from \$34 billion in 1980 to about \$196 billion in 1996, which is about \$300,000 per minute (Gatty, 1995). These figures indicate a 12% increase per year over the last 15 years. At the present growth of Medicare expenditures, economists predict that Medicare costs will reach \$286 billion by the year 2000 (NIHCM, 1995). Consequently, economists and budget analysts predict that the Medicare Trust Fund will reach bankruptcy by the year 2001 (Wall Street Journal Interactive Edition, 22 January 1997).

The question in everyone's mind is how could something so well intentioned get so out of control? In 1965 when Congress approved Medicare, it had one primary purpose: to provide financial assistance to the elderly who were suffering from acute illnesses and diseases. However, Medicare's objective shifted to providing care for the elderly suffering from chronic and incapacitating illness (Kongstvedt, 1996). This resulted in a major shift in the Program costs. For example, the National Institute for Health Care Management reported in 1995 that a small percentage of beneficiaries, who suffer from chronic and incapacitating illnesses, account for the largest portion of Medicare costs. Medicare expenditures are broken down into the following groups:

1. Five percent of enrollees account for 50% of expenditures
2. Ten percent of enrollees account for 70% of the expenditures
3. Twenty-five percent of enrollees account for 91% of expenditures.

Furthermore, beneficiaries who are in the last 30 days of life account for 40 percent of all

Medicare expenditures (Lubitz & Riley, 1993).

Medicare expenditures pose a serious economic problem for this country. Since Medicare's approval in 1965, Congress has passed several forms of legislation in hopes of decreasing costs without affecting the access and quality of health care. One attempt for controlling Medicare expenditures was the introduction of Medicare managed care. Managed care organizations (MCOs) have been a part of this country's health care system since the turn of the century. However, managed care did not receive overwhelming support from Congress due to political pressures from the AMA. However, in 1973 during the Nixon administration, Congress passed the HMO Act of 1973. The Act provided federal support allowing HMOs to increase their numbers and expand enrollment (Kongstvedt, 1996). The HMO Act of 1973 was a predecessor to the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982. TEFRA introduced the full-risk HMO and other managed care plans as health care options for Medicare beneficiaries (Zarabozo, Taylor, and Hicks, 1996 and Hunter & Shadle, 1983). Congressional approval of TEFRA came in September 1982. However, the program did not become effective until February 1985 because Congress requested the HCFA to conduct pilot programs and to publish regulatory guidelines prior to its full implementation (Kongstvedt, 1996).

While the health care community anticipated the implementation of TEFRA, Congress approved additional amendments that attempted to control Medicare expenditures. In 1983, Congress approved the Social Security Amendments of 1983 which initiated the Medicare prospective payment system (PPS). PPS implemented a system of diagnosis-related groups (DRGs) which were predetermined rates for hospital inpatient services provided to Medicare beneficiaries (Williams and Torrens, 1993). Both TEFRA and the Social Security Amendments of 1983 were attempts by Congress to control the rapid growth of Medicare expenditures.

However, rapid growth and expenditures were not the only concerns of Congress and Medicare beneficiaries. Many issues began to surface concerning choice, quality and regulatory requirements of the health care provided by HMOs and Competitive Medical Plans (CMPs). Consequently, since 1985 Congress has amended TEFRA four times to ensure that these concerns are met. The first amendment came in 1985. Congress passed the Omnibus Reconciliation Act of 1985 (OBRA-85) which expanded the role of peer review organizations (PROs). PROs are groups of practicing health care professionals who are charged by HCFA to conduct general overviews of the cost and quality of health care provided to Medicare beneficiaries. Moreover, these organizations are usually established at the state level with the goal of educating and assisting the Medicare population in receiving efficient and economical health care services (HCFA, 1997 and Kongstvedt). OBRA-85 required HMOs to have their inpatient and ambulatory care programs reviewed by PROs to ensure that Medicare beneficiaries were receiving quality care. The second involved the passage of OBRA-86 that allowed Medicare beneficiaries the opportunity to disenroll from HMOs at any point after enrollment. Disenrollment was effective the first day of the next month after their request. The third amendment, passed in 1987, required HMOs that were terminating or were not seeking renewal of their contracts with HCFA to make arrangements for supplemental (Medigap) coverage for their Medicare enrollees. The final amendment to TEFRA, OBRA-90 required HMOs contracted with HCFA to meet the same requirements that were dictated to hospitals. For example, HMOs are required to inform their enrollees that they have the right to advance directives for their care. An example of an advance directive is a living will. Furthermore, HMOs are required to make these advance directives a part of an enrollees' medical record (Kongstvedt, 1996).

Medicare beneficiaries continue to have a choice as to the type of care they wish to have whether it is under the traditional fee-for-service system or under a Medicare managed care program. However, the right to choose comes with an increase in cost. The HCFA Medicare managed care program provides beneficiaries the right to choose from four different plans or models. The four plans are the risk-based model, cost-based model, health care prepayment model and the competitive bidding model (HCFA, 1996). The differences between the plans include the method of reimbursement, the premiums, the services provided, and the restrictions.

The first type of Medicare managed care model is the risk-based plan. Risk based plans are the most popular of the four models. Approximately 85% of the Medicare beneficiaries in managed care are enrolled in risk based plans (HCFA, 1996). HMOs that contract with HCFA under risk based plans are reimbursed on a per member per month (PMPM) amount and assume full financial risk for their Medicare enrollees (Murray and Anderson, 1996). The capitated amount is based on the average adjusted per-capita cost (AAPCC), which is the Medicare adjusted average expense under a fee-for-service method of reimbursement for a geographical area (Aston, 1996). Medicare risk HMOs receive 95% of the AAPCC for each enrollee per month. For example, the AAPCC for Bexar County (San Antonio, Texas) is \$350, so an HMO can enroll Medicare beneficiaries at a PMPM rate of \$332.50 (K. Kerchief, personal communication, 10 February 1997). Risk-based plans must provide enrollees all services offered under the traditional fee-for-service method. Medicare beneficiaries prefer risk-based plans over other managed care plans and traditional fee-for-service because they often provide additional services. Some of these services include preventive care, prescription drugs and eye examinations (Murray & Anderson). A major drawback for enrollees is that they are not allowed to seek care outside of the plan except in emergency situations (Anonymous, 1996).

The second type of managed care plan is the cost-based model. The major difference between risk-based plans and cost-based plans is the method of reimbursement from HCFA. HCFA reimburses cost-based plans on a pre-determined amount or cost for the service provided (Murray and Anderson, 1996). However, like the risk-based plan, it provides all the traditional services covered under Medicare but it does not offer additional services. An advantage of cost-based plans is that enrollees are allowed to seek care outside of the plan; however, they must pay the deductibles and coinsurance payments resulting from traditional fee-for-service care (HCFA, 1996). In the future, HCFA is proposing to replace cost-based plans with either a PPO or point of service model (Zarabozo, Taylor, and Hicks, 1996).

The third type of Medicare managed care plan is the health care prepayment plan (HCPP). The HCPP is reimbursed under a cost basis or a capitated amount based on its contractual agreement with HCFA (Scott, 1996). HCPPs are similar to cost-based plans except they only provide Medicare Part B services. Consequently, enrollees are responsible for obtaining all services covered under Medicare Part A, like inpatient hospital care and skilled nursing services. As an additional service, some HCPPs will make arrangements and file Medicare Part A claims for their enrollees (HCFA, 1996).

The final type of Medicare managed care plan is the competitive bidding model. HCFA is currently running a pilot test of this program in Baltimore, Maryland (Weissenstein, 1996). Under a competitive bidding model, HCFA will utilize the market forces in a geographical area to determine payment rates. HMOs desiring to enroll Medicare beneficiaries will have to place bids with HCFA. HCFA will then review the bids, select the lowest and standardize the services based on the bids. HMOs desiring to participate in Medicare managed care will enroll beneficiaries at the rate determined by the bidding process. Moreover, HMOs must provide enrollees with at

least the services determined by the bidding process. HMOs may provide additional services to beneficiaries; however, they cannot collect additional premiums for standard services. HMOs looking to capture a market share of Medicare beneficiaries will offer additional services and benefits (Kongstvedt, 1996). The success of competitive bidding will dictate whether it will replace HCFA's AAPCC method of reimbursing HMOs for Medicare enrollment care (Scott, 1996).

The primary goals of Medicare managed care are to reduce costs, guarantee access and maintain quality care for beneficiaries. In order to judge any program one must look at the advantages and disadvantages. HCFA's Medicare managed care program has several advantages and disadvantages that take into account the issues of cost, access and quality of health care.

Medicare managed care has several benefits. Most of the care that Medicare beneficiaries receive is prepaid by HCFA. Patients are required to pay premiums under two situations. First, premiums are required to cover additional benefits. Second, to cover adjustments to the AAPCC because an enrollee lives in a surrounding county with a lower AAPCC. Another advantage is that beneficiaries no longer have to purchase supplemental insurance to cover deductibles and high coinsurance payments. Also, Medicare beneficiaries can receive more benefits under a Medicare managed care program than under a traditional fee-for-service plan. For example, some risk-based plans offer preventive medicine, prescription drugs, and eye and hearing examinations. Once enrolled in an HMO, beneficiaries are no longer required to fill out lengthy and burdensome claim forms. Another advantage is that beneficiaries can request to disenroll from a Medicare managed care plan at any time during the month. Enrollment in a plan will cease on the 1st day of the month after the request is filed with the Social Security Administration. Medicare beneficiaries have the advantage that their enrollment in a Medicare managed care plan is

guaranteed despite their medical history or current health. Furthermore, managed care organizations (MCOs) cannot disenroll beneficiaries because of cost, severity, occurrence or risk associated with their illness. However, HMOs can disenroll beneficiaries for failing to pay premiums or copayments (Anonymous, 1995).

The disadvantages of Medicare managed care are limited to four general issues. First, Medicare beneficiaries enrolled in HMOs are restricted in their choice of physicians (Anonymous, 1995). Unlike the traditional fee-for-service method of choosing a family or preferred physician, HMOs contract with physicians or employ physicians to provide services. Medicare enrollees are restricted under a risk based plan from obtaining services outside of the plan; however, under a cost-based plan enrollees may seek care outside of the plan by paying deductibles and coinsurance payments (Gatty, 1995). Second, Medicare beneficiaries are limited to their choice of hospitals. HMOs will contract with local hospitals at a set rate to provide inpatient services to its enrollees. Depending on the managed care plan, Medicare beneficiaries must either seek care at the hospitals designated by the plan or pay deductibles and coinsurance payments for receiving services outside of the plan. The third disadvantage is that Medicare beneficiaries enrolled with HMOs may not receive the level of specialty care when they wish to receive it. For example, enrollees must first see a primary care physician (PCP) before they can obtain services from specialists. PCPs, are known as "gatekeepers", because they screen patients and manage specialty care referrals (Krentz, 1995). The purpose of "gatekeepers" is to prevent abuse and prevent the increased costs associated with specialty care. The final disadvantage is that some HMOs place restrictions on care and may require approval before their enrollees can receive out-of-area care. HMOs may require their Medicare enrollees to make large copayments for care received during emergency situations or for out-of-area care (Anonymous, 1995).

Medicare beneficiaries should weigh the advantages and disadvantages when deciding between the traditional fee-for-service care or a Medicare managed care program. It is evident from current Medicare HMO enrollment growth patterns that beneficiaries are leaning towards managed care as a preferred option. Medicare beneficiaries are opting for reduced out of pocket fees and additional services provided under HMO risk plans. Consequently, Medicare risk plans enroll the largest percentage and have also experienced the most growth in Medicare beneficiaries. For example, in 1985, Medicare beneficiaries enrolled in managed care organizations was just over 1.1 million. However, according to the National Institute for Health Care Management (1995), the number enrolled in Medicare managed care plans in 1997 grew to 4.2 million beneficiaries. Growth in HMO enrollment from December 1993 through December 1994 was approximately 23%. This figure was well above its average of 15-18% per year. However, the largest recorded growth in enrollment occurred from December 1994 through April 1996 when Medicare HMO enrollment grew by almost 53% (Zarabozo, Taylor, and Hicks, 1996). This is a strong indication that Medicare beneficiaries are favoring Medicare managed care over traditional fee-for-service. Its lower out of pocket costs and additional benefits make it a viable choice for beneficiaries (Scott, 1996).

The MCO with the largest percentage of Medicare enrollees is the California-based HMO, PacifiCare Health Systems Inc. (Page, 1996, Spring). It has approximately one million Medicare beneficiaries enrolled in its Secure Horizons Program (Anonymous, 1996). In San Antonio, Texas, PacifiCare of Texas has approximately 60,000 Medicare beneficiaries enrolled in its program. The Secure Horizons Program operates under a risk-based contract with HCFA. Medicare enrollees who live in the Texas counties of Atascosa and Bexar are not required to pay premiums. However, enrollees living in the surrounding counties are required to pay a nominal

quarterly premium to match the AAPCC for San Antonio, Texas. The benefits provided by this program include the traditional services covered by Medicare Part A and B. The services require no deductibles and coinsurance payments. Office visits require a copayment of \$6.00. Moreover, PacifiCare's plan provides additional services to include prescription drugs, preventive care, immunization, eye and hearing examinations. These services require a copayment ranging between \$6.00 to \$20.00 per visit or prescription. PacifiCare of Texas' marketing plan is quite simple and follows the guidelines set forth by HCFA. Their marketing program includes visits to community centers, retirement communities and television and newspaper advertisement (K. Kerchief, personal communication, 10 February 1997). However, the largest percentage of their marketing and advertising is done through word of mouth from one beneficiary to another (K. Kerchief, personal communication, 10 February, 1997 and Kongstvedt, 1996). An additional benefit provided to Medicare beneficiaries is the opportunity to enroll in PacifiCare's Secure Horizons' Wellness Club. PacifiCare provides the benefit at no cost and it assists its members in obtaining information and enrollment in fitness, nutrition and weight loss programs. The aim of the program is to improve their enrollees' health and to reduce health care costs (Secure Horizons Information Kit, 1996). According to LTC Karl Kerchief, an Army-Baylor University Administrative Resident assigned to PacifiCare, the Wellness Club saved the organization approximately \$60,000 in health care costs during 1996.

What can be done to control Medicare costs and prevent its bankruptcy? Clearly, this is an issue which President Clinton and Congress must resolve before the turn of the century. Many politicians and analyst believe that the answer is to cut the Medicare budget. The Medicare budget was a key issue during the 1996 presidential campaign and debate over the issue continued even after the election in November of 1996. In 1996, President Clinton proposed a \$100 billion

Medicare budget cut over five years while Republicans took a more aggressive approach and proposed a \$158 billion reduction over six years. In 1997, President Clinton compromised by proposing a \$138 billion reduction in his 1997 budget proposal to Congress (Diamond, 1997 and Keto, 1997). The proposed cuts will reduce reimbursements to HMOs, hospital and physicians. Despite the budgetary cuts, analysts predict that the Medicare Trust Fund will expire in 2007 (Calmes and Hitt, 1997). So, what is the answer to keeping the Medicare Trust Fund solvent? Some economists and analysts feel the answer is to increase payroll taxes and patient premiums. On the other hand, many Congressional members and analysts believe that letting the Medicare program mirror the private employers use of managed care plans as method of cutting health care costs is the answer to resolving the Medicare Trust Fund issue (Schorr, 1996). According to Murray and Anderson (1996), "Medicare managed care is virtually an untapped market" (p. 40). Medicare managed care could possibly save the Medicare Trust Fund because it offers a means for reducing the rate of health care inflation by offering direct discounts off projected health care costs. Moreover, it provides the Medicare program with a method for budgeting and projecting expenses for treating Medicare beneficiaries (Kongstvedt, 1996).

The dilemmas facing the Medicare program and the insolvency of its Trust Fund are issues that will haunt lawmakers into the next century. In addition, Congress, the DHHS, HCFA and the DoD must address the issues of where and who will fund the care of the 1.273 million Americans who are beneficiaries of the MHS and the Medicare program (Chapman, 1996). Moreover, this population will increase by 50,000 per year as beneficiaries turn 65 and are no longer eligible for CHAMPUS or TRICARE (Maggrett, 1996). In 1996, the DoD provided more than \$1 billion worth of health care to approximately 324,000 dual-eligible beneficiaries on a space available basis which was not reimbursed by Medicare (TROA, 1996 and Chapman). Therefore, the

dilemmas facing this nation and its lawmakers are where should this population receive health care and who should pay for the health care services?

Medicare Subvention is legislation that allows HCFA to reimburse the DoD for the health care it provides to Medicare eligible beneficiaries who enroll in TRICARE Prime. Prior to the Medicare Subvention legislation, it was illegal for the DoD to collect from HCFA for the care provided to the dual-eligible beneficiaries. Overall, the goal of the TRICARE Senior Program is to save money for both the government and retirees (TROA, 1996). In 1996, Medicare Subvention legislation was proposed in Congress on four separate occasions. Senator Phil Gramm (R-TX) introduced a bill (S.1487) in December 1995 that would establish a Medicare Subvention demonstration project. Three additional bills were introduced in March of 1996 by Senator Bob Dole (R-Kan.) (S. 1639), Congressmen Joel Hefley (D-CO) (H.R. 3142), and J.C. Watts (R-OK) (H.R. 3151) (Chapman, 1996 and AFA Legislative Update, 1996). Representative Hefley addressed his colleagues in the House (Chapman), "Medicare is simply paying DoD just as [it] would pay any approved provider ... and emphasized that studies have shown military care to cost less, ... this means that Medicare would be paying less money to DoD than it would in the private sector" (p. 3). All four bills were similar and each called for the approval of a Medicare Subvention demonstration project between the DoD and the DHHS. The legislation proposed by the Congressmen required the DoD to conduct a Medicare Subvention Project in TRICARE Regions 6 and 11. The legislation also required that the Secretary of Defense and the Secretary of the DHHS sign a Memorandum of Agreement allowing the legislation to be considered as part of FY 97 Defense Authorization Act (733 Update Report, 1996). On September 6, 1996, the Secretary of Defense, William Perry, the Secretary of the DHHS, Donna Shalala, the (ASD)(HA), Dr. Stephen Joseph, and the Administrator, HCFA, Bruce Vladeck, signed a Medicare

Demonstration of Military Managed Care Memorandum of Agreement. The agreement stipulated that the DoD would pay for the care provided to the dual-eligible population until it reached expenditures that would normally be incurred for providing space available care. This level of expenditure is known as the DoD's level of effort (Joseph, Perry, Shalala, and Vladeck, 1996). However, the legislation was blocked by Representatives Bill Archer (R-TX)(Chair of the House Ways and Means) and William Thomas (Chair of the House Ways and Means Subcommittee on Health) because they believed the project would place an additional burden on the Medicare Trust Fund. Consequently, the Medicare Subvention legislation was left out of the FY 97 Omnibus Appropriations Act (AFA Legislative Update, 1997 & Philpott, 1996).

Due to lack of legislative approval, Dr. Stephen Joseph, the ASD(HA) pushed for the implementation of a simulation project entitled Medicare/Military Managed Care Simulation Project. The project would allow selected MTFs within the MHS to enroll dual-eligible beneficiaries and simulate Medicare reimbursement. The scheduled start date of the simulation was February 1, 1997 (Joseph, 1996). The simulation project covered six geographical sites: Brooke Army Medical Center/Wilford Hall Medical Center, San Antonio, Texas, Reynolds Army Community Hospital, Fort Sill, Oklahoma, Madigan Army Medical Center, Fort Lewis, Washington, Keesler Medical Center, Keesler, AFB, Mississippi, Eisenhower Army Medical Center, Fort Gordon, Georgia, and San Diego Naval Hospital, San Diego, California. The proposed sites would operate as Medicare at-risk HMOs for dual-eligible beneficiaries (Simulation of Military Health Services System as a Medicare at-Risk HMO, 1996). However, the simulation project never became operational because Medicare Subvention legislation was reintroduced in the 105th Congress. On August 1, 1997, the DoD and the DHHS were given approval by Congress to conduct a limited Medicare Subvention Demonstration Project. The

project known as The Medicare Demonstration of Military Managed Care was included in the FY 98 Omnibus Appropriations Act (Martin, 1997).

The Medicare Demonstration of Military Managed Care Memorandum of Agreement requires the Medicare program to treat the DoD's MHS as if it were operating a risk-type Medicare HMO. The MHS is responsible for enrolling dual-eligible beneficiaries into a demonstration project and providing them the same services as TRICARE Prime enrollees. Furthermore, the MHS must provide these dual-eligibles with the additional services provided under an at-risk type HMO contract. For example, Medicare beneficiaries are authorized care in a skilled nursing facility as well as home health care. These services are not routinely provided under the TRICARE contract. The DoD will name its program TRICARE Senior Prime.

Who is eligible for enrollment in TRICARE Senior Prime? The program is open to all dual-eligibles beneficiaries who fall into the following categories:

1. Must be at least 65 and live within the geographical area of an MTF selected to participate in the demonstration project.
2. Must have received care in the MTF prior to October 1, 1996 or become eligible for Medicare after June 30, 1996.
3. Must not be presently enrolled in a Medicare HMO.
4. Must be enrolled in Medicare Part B and agree not to receive care through any service other than TRICARE Senior.

Beneficiaries not eligible for enrollment in TRICARE Senior include the following:

1. Beneficiaries who spend more than 90 consecutive days outside the MTF's catchment area.
2. Individuals wishing to receive their care from a civilian provider.

3. Individuals who are currently covered with other health insurance through an employer or spouse's employer.

4. Individuals who elect the Medicare hospice coverage or have end-stage renal disease. According to the TRICARE Senior Handbook (1997), once a dual-eligible is enrolled, they can only be disenrolled under two conditions, voluntary and involuntary disenrollment. Voluntary disenrollment requires submission of a written request by the enrollee. Reasons for voluntary disenrollment include an enrollee wishing to enroll in a civilian Medicare HMO, loss of Medicare Part B, or relocation out of the catchment area. Disenrollment will always occur on the first day of the month following the request. Involuntary disenrollment from TRICARE Senior may occur if an enrollee fails to maintain their Medicare Part B, enrolls in a Medicare HMO, resides outside of the area for a period longer than 90 consecutive days or if an enrollee is cited for abusive or disruptive behavior. Furthermore, individuals who wish to enroll in the Medicare hospice benefit or are diagnosed with end-stage renal after enrollment are not required to disenroll from the program (TRICARE Senior Handbook, 1997).

TRICARE Senior will offer dual-eligibles the opportunity to select or be assigned to a PCM. The PCM is responsible for providing and coordinating all of the health care needs for the enrollee and for referring the patient for specialty care when necessary. TRICARE Senior enrollees are also authorized the use of the National Mail Order Pharmacy with a minimal cost-share of \$9.00 for prescriptions and refills. The most important feature of the program to enrollees is having the same priority access standards afforded to TRICARE Prime enrollees (TRICARE Senior Handbook, 1997).

The TRICARE Senior program will clearly reduce the out-of-pocket expenditures for enrollees. The only costs associated with enrolling in the program is the Medicare Part B

enrollment fee which enrollees must pay to Medicare. Dual-eligibles are not required to pay the TRICARE Prime enrollment fees. Aside from the Medicare Part B enrollment fee, enrollees are required to pay the small daily subsistence fees associated with inpatient care, the cost share of the mail order pharmacy and the costs share associated with utilizing a skill nursing facility (TRICARE Senior Handbook, 1997).

In addition to low costs for health care, beneficiaries are allowed to dispute the care they receive. HCFA requires the DoD's MHS to establish a system with guidelines that will entitle TRICARE Senior enrollees to file grievances and appeals. Enrollees can file grievances in writing with the MTF or through the TRICARE Service Center (TSC). A written response must be provided to the enrollee within 30 days. Enrollees may file appeals if they feel that they are being denied a service or a referral by their PCM. The entire grievance and appeals process is still an open issue being discussed by the ASD(HA) and HCFA (N. Cardenas, Notes - Medicare Subvention Convention, 1997).

The advantages and disadvantages of the TRICARE Senior program, from the standpoint of the dual-eligible beneficiary, are similar to those outlined under the Medicare Managed Care Program. For enrollees, the advantages far exceed the disadvantages. Enrollees are provided low out-of-pocket health care and benefits not provided under the traditional fee-for-service Medicare program. The disadvantages are the limitations placed on choice of a PCM and the inability to self-refer to specialty care.

The MHS has been operating as an HMO type health care system for many years. Consequently, TRICARE Senior enrollees will see little if any difference in the type of health care they are accustomed to receiving in DOD MTFs. However, the MHS must take steps to ensure that enrollees are familiar with the Medicare process. In 1996, Reynolds Army Community

Hospital (RACH), Fort Sill, Oklahoma developed a program which was aimed at educating the dual-eligible population on both Medicare and the Medicare Demonstration Project. This program was known as the Silver Care Program.

The RACH Silver Care Program was instituted in April 1996 with the purpose of providing assistance to dual-eligible beneficiaries transitioning from the military health care system to the Medicare program and the civilian medical community (Crandall, 1996). The Silver Care program allowed a limited number of Medicare-eligible beneficiaries to utilize the health care services at RACH during their transition. It was estimated that there were approximately 4,000 dual-eligible beneficiaries residing in the RACH catchment area. Many of these beneficiaries experienced two major problems in transitioning to civilian health care and the Medicare Program. First, approximately 25% of this dual-eligible population were unable to acquire civilian health care because physicians in the local area refused to accept additional Medicare patients. Second, many of these dual-eligibles could not afford civilian health care under the Medicare program.

Silver Care was designed as a temporary program not expected to extend past October 1996 (Silver Care Handout, 1996). When Medicare Subvention was not approved for FY 97, Colonel David B. Crandall, the RACH Commander, chose to continue the program. His reasons for continuing the program included the moral obligation and the possibility of rolling the program into the Medicare Simulation project or even the Medicare Demonstration Project if it received congressional approval for FY 98.

What does the Silver Care Program provide dual-eligible beneficiaries? The Silver Care Program authorizes dual-eligible beneficiaries to receive care with the same access priority as TRICARE Prime enrollees. RACH enrolled approximately 1,380 dual-eligibles in the program. The Silver Care enrollees were given briefings about the program and were assigned a silver card

designating them as program enrollees. They were then assigned to one of three primary care teams. The teams are Family Practice 1 which consists of 13 military PCMs, Family Practice 2 which has 12 military PCMs and the Internal Medicine Clinic which has four military internists/PCMs. These PCMs are responsible for managing the care of the enrollees and focusing their care on prevention, health education and counseling, and diagnostic and therapeutic services. Patients receive appointments through the central appointment system and receive all their primary care through their assigned PCM (L. Bulley & C. Mumford, personal communication, October 27, 1997). Silver Care enrollees requiring specialty care receive their referral through their assigned PCM. Silver Care enrollees receive their specialty care at RACH, if provided within the facility. Enrollees requiring specialty care, not provided at RACH, must utilize their Medicare coverage with a civilian provider or receive care on a space available basis at a DOD Medical Center (MEDCEN) (G. Rasmussen, personal communication, October 29, 1997). The future of RACH's Silver Care Program is dependent upon its selection as a Medicare Demonstration site and/or the continued financial assistance provided by the Great Plains Regional Medical Command (GPRMC). In FY 1997, the GPRMC provided \$500,000 in additional funding to cover some of the cost associated with providing care to the dual-eligible beneficiaries. The funds were utilized by the pharmacy to cover the cost associated with providing pharmaceuticals to this population.

In the course of conducting the research for this study, the researcher identified several issues and assumptions. The issues identified are listed as follows:

1. What is the health status of the population enrolled in RACH's Silver Care Program versus those dual-eligible beneficiaries utilizing space available care?
2. Did RACH enroll an unhealthy population?

3. Does managing the health care of an enrolled population increase health status and patient satisfaction? If yes, then is increased patient satisfaction/health status attributed to access?
4. Does health care utilization increase because of guaranteed access to health care?
5. Are there any differences in the level and attention of health care provided to the two beneficiary populations?

The assumptions identified in the course of the research are the following:

1. The density of providers available to treat Silver Care enrollees has not changed.
2. The Silver Care enrollees and space available care utilizers (over age 65) are afforded equal time per clinical visit.
3. There are no limits or restrictions on the number of appointments available to the beneficiaries enrolled in the Silver Care Program.
4. There are no confounding variables that limit access to the Silver Care enrollees.
5. The facility has not reduced services to restrict access or expand services to increase access for the enrolled population.
6. The Silver Care enrollees are not using their Medicare eligibility and other insurance to receive care through a civilian primary care provider.

Purpose. The purpose of this research was to analyze utilization of inpatient and outpatient services of two dual-eligible populations at RACH from the perspective of cost, utilization and patient satisfaction. The study consisted of an analysis of two separate dual-eligible populations: a population enrolled in the RACH Silver Care Program and a population that is dependent on space available care.

The objectives of this research were to conduct two separate analyses. The first analysis consisted of a retrospective study of the health care costs and utilization data associated with

providing care to the over 65 dual-eligible population. The objective of this analysis was to calculate the descriptive statistics (means, standard deviations, frequencies, etc.) and to calculate the trends in health care costs and utilization for the dual-eligible population. In addition, the data analysis was broken down into the two dual-eligible populations. Demographic data was included to assist in categorizing cost and utilization trends for each of the populations. In a study conducted by Lozano, Fishman, VonKorff and Hecht (1997), demographic data was included in the study in order to identify functional relationships between health care costs and utilization. The analysis did not include the calculation of inferential statistics or the identification of significant difference between the two dual-eligible populations. The variables utilized for this analysis were the following:

1. Inpatient Costs
2. Inpatient Bed Days
3. Outpatient Costs
4. Outpatient Visits
5. Age
6. Gender
7. Silver Care Enrollment
8. PCM

The second analysis consisted of a combination of historical data on health care utilization and the employment of a sample survey of the two dual-eligible populations. The objective of this analysis was two fold. First, the study was aimed at identifying significant differences in health status and patient satisfaction between the two dual-eligible populations; Silver Care enrolled and non-Silver Care enrolled beneficiaries. The measurement of health status and patient satisfaction required the employment of a survey which was conducted on a random sample of the over 65 population utilizing RACH. The hypotheses for this analysis were the following:

Null Hypothesis (H_0) - There is no difference in the dual-eligible patient's health status

based on Silver Care enrollment.

Alternate Hypothesis (H_a) - There is a difference in the dual-eligible patient's health status based on Silver Care enrollment.

Null Hypothesis (H_o) - There is no difference in dual-eligible patient satisfaction levels based on Silver Care Enrollment.

Alternate Hypothesis (H_a) - There is a difference in dual-eligible patient satisfaction levels based on Silver Care Enrollment.

Secondly, the study was aimed at identifying significant differences in health care utilization when taking into account demographic data, health status and patient satisfaction of a sampled population. The dependent variables for this analysis were the following:

1. Inpatient Bed Days
2. Outpatient Visits

The independent variables were the following:

1. Age
2. Gender
3. Silver Care Enrollment
4. Beneficiary Status
5. Health Status
6. Patient Satisfaction

The model utilized for this analysis is similar to the models provided in two published studies.

First, in a study conducted by Riley, Tudor, Chiang, Ingber (1996), significant differences were identified in general health status between two over 65 populations when taking into account age, gender, enrollment status. Second, Nelson, Brown, Gold, Ciemnecki and Docteur (1997) conducted a study in which significant differences were identified when patient satisfaction was compared to age, gender, race and HMO enrollment. The hypotheses for this analysis were the following:

Null Hypothesis (H_0) - There is no difference in health care utilization (inpatient bed days and outpatient visits) based on age, gender, enrollment status, PCM, health status and patient satisfaction.

(Outpatient Visits/Inpatient Bed Days)

Utilization

$$Y' = a_0U + b_1 \text{ Age} + b_2 \text{ Beneficiary Status} + b_3 \text{ Enrollment} + b_4 \text{ Gender} + b_5 \text{ Health Status} + b_6 \text{ Patient Satisfaction}$$

Alternate Hypothesis (H_a) - There is a difference in health care utilization based on age, gender, enrollment status, PCM, health status and patient satisfaction.

(Outpatient Visits/Inpatient Bed Days)

Utilization

$$Y' = a_0U + b_1 \text{ Age} + b_2 \text{ Beneficiary Status} + b_3 \text{ Enrollment} + b_4 \text{ Gender} + b_5 \text{ Health Status} + b_6 \text{ Patient Satisfaction}$$

Methods and Procedures

This research study entailed two separate quantitative analyses: a historical data analysis of the over 65 user population utilizing RACH and an analysis of historical data and the employment of a survey instrument on a sample of the population under study. The first study required an analysis of historical health care costs and utilization obtained from two information systems: the Composite Health Care System (CHCS) and Medical Expense and Performance Reporting System (MEPRS). The second study utilized a survey instrument to measure current health status and patient satisfaction for two dual-eligible populations.

The first analysis was a retrospective study of data obtained from CHCS and MEPRS on the two dual-eligible populations: patients enrolled in the Silver Care Program and patients utilizing space available care at RACH. The data was obtained from CHCS and MEPRS and contained demographic data, inpatient bed days, inpatient costs, outpatient visits and outpatient costs associated with treating two dual-eligible populations from April 1996 through December

1997. These dates were selected to reflect the implementation date of RACH's Silver Care Program. Furthermore, the indicated period allowed for the tracking of seasonal trends. The data obtained for the Silver Care population consisted of those beneficiaries who were enrolled in the program for the entire period. Silver Care beneficiaries who died during the indicated period were separated from the study in order to prevent skewing of the results (Nelson, Brown, Gold, Ciemnecki and Docteur, 1997). A separate analysis was conducted on this population in order to capture costs and utilization of health care during the indicated period. The data obtained for beneficiaries utilizing space available care entailed a beneficiary population that utilized RACH from April 1996 through December 1997. Again, data obtained on individuals who died during the indicated period were separated and analyzed similar to the Silver Care population. The demographic data obtained from the CHCS system consisted of patient's name, age, gender, Silver Care enrollment, and PCM assignment. The patient's name was recoded with a number on the data set in order to maintain patient confidentiality. In addition, inpatient bed days and outpatient visits were obtained from CHCS for each beneficiary. Inpatient and outpatient costs were retrieved from MEPRS. In order to maintain patient confidentiality the data obtained did not contain clinical information. A review of the population statistics indicated that the living population consisted of 1324 Silver Care enrollees and 892 Non-Silver Care beneficiaries.

The variables in this study included inpatient costs, inpatient bed days, outpatient costs, outpatient visits, age, gender, Silver Care enrollment, and PCM. The cost and utilization data were obtained in monthly increments for the purpose of calculating monthly costs and rates and for tracking trends over the indicated study period. The rates of interest for this study were the number of bed days per thousand, average inpatient cost per beneficiary, number of outpatient visits per thousand and the outpatient cost per beneficiary (Capitation Strategy, 1994). The

calculations for these rates are indicated below:

$$\text{*Bed Days Per 1,000} = \frac{\text{\# of Occupied Bed Days (Population of Interest)}}{\text{Total Number in Study Population}} \times 1,000$$

$$\text{*Clinical Visits Per 1,000} = \frac{\text{\# of Clinical Visits (Population of Interest)}}{\text{Total Number in Study Population}} \times 1,000$$

$$\text{*Inpatient Costs Per Ben.} = \frac{\text{Total Inpatient Costs (Population of Interest)}}{\text{Total Number in Study Population}}$$

$$\text{*Outpatient Costs Per Ben.} = \frac{\text{Total Outpatient Costs (Population of Interest)}}{\text{Total Number in Study Population}}$$

*Retrospective Case-Mix Analysis System Users Manual, 15 May 1995, p. C-12

The costs were determined by applying the data obtained from MEPRS, which was calculated using a step-down method, which assigned overhead operating costs (not directly attributed to a particular ward, unit or clinic) proportionally among the hospital sections and clinics (Department of Defense Instruction 6010.13-M, 1995). The costs associated with providing inpatient and outpatient health care are found in Appendix A. MEPRS data have limitations. It does not provide an exact cost for each procedure or visit due to MHS' inability to track itemized costs. Moreover, clinical visits and bed days are factors that are used to determine cost. Costs associated with inpatient care were separated into three categories: expense after stepdown (bed days), ancillary costs (procedures requested per specialty) and direct expenses (salaries, travel, rents, contracts, supply and equipment). Outpatient care costs were divided in a similar manner barring the exclusion of expense after stepdown (J. Burt, personal communication,

October 28, 1997).

Inpatient bed days were defined as the number of days that a patient occupied a hospital bed during a reported period. A day equated to a full 24-hour period (Medical Summary Report, MED 302, 1985).

According to the MED 302 report, an outpatient visit "is counted each time an eligible beneficiary, either inpatient or outpatient, presents himself/herself to a separately organized clinic or specialty service for examination, diagnosis, treatment, evaluation, consultation, counseling, and/or medical advice" (p.3-1). The care provided to the beneficiaries during these visits entailed face-to-face solo contact with a family practitioner, general internists, specialty physician, physician assistant, nurse practitioner, a medical specialist, or other providers approved by the credentials committee (MSR User's Manual & Briggs, Rohrer, Ludke, Hilsenrath, & Phillips, 1995).

The age of each beneficiary was obtained from CHCS. Patient age is a continuous variable that was measured in years with the age of the population starting at 65 because of their Medicare eligibility. Age is an excellent predictor variable of curvilinear relationship with health care utilization because younger and older populations have a higher need for medical services (Williams and Torrens, 1993). The average age of the two populations was calculated by totaling the ages of the identified populations and dividing the figure by number of beneficiaries in each group (Marquis, Davies, and Ware, 1983).

Gender of each beneficiary was acquired utilizing the CHCS. Beneficiary gender was coded as a binary variable; male (1) or female (0). This variable was included in the analysis because research has shown that females utilize more health services attributed to their gynecological needs. Reports also indicate that women average at least one more visits than

males and that they are more likely to be hospitalized (Williams and Torrens, 1993). The percentage of male beneficiaries was determined by totaling the number of males and dividing the figure by the total beneficiary population and multiplying by 100 (Cherkin, Hart and Rosenblatt, 1988).

Enrollment status was likewise obtained from CHCS data and was coded as a binary variable; Silver Care (1) or Non-Silver Care (0) enrollment. The percentage of Silver Care enrollees was determined similarly to calculating the percentage of male beneficiaries. The information on Silver Care enrollment was obtained from CHCS. In this research study, the Silver Care beneficiaries were enrolled in a managed care plan versus non-enrolled beneficiaries who relied on space available care, other insurance or fee-for-service Medicare (Murray, 1988).

As noted earlier, in April 1996, dual-eligible beneficiaries were provided the opportunity to enroll in RACH's Silver Care Program. The number of dual-eligible beneficiaries enrolled in the Silver Care program was broken down into their assigned primary care teams: Family Practice 1, Family Practice 2 and Internal Medicine Clinic. Beneficiaries utilizing space available care were identified as having no PCM assignment. The PCM variable was defined as four mutually exclusive binary variables indicating a patient's enrollment: Family Practice 1, Family Practice 2, Internal Medicine Clinic, and no PCM assignment (Cherkin, Hart and Rosenblatt, 1988).

The descriptive statistics (means, standard deviations, frequencies, etc.) were calculated for each variable using the statistical software package, SPSS. The figures calculated by SPSS provided an overview of the health care costs and utilization of the two dual-eligible populations. Furthermore, the statistical software provided comparisons between age, gender, enrollment, and PCM against costs and utilization. The presence of these variables was utilized in the second analysis in order to determine significant differences in health care utilization associated with

treating these two dual-eligible populations.

The second analysis consisted of historical health care utilization data and the employment of a survey instrument on a random sample of the two dual-eligible populations. The purpose of the survey was to measure current health status and patient satisfaction of the sampled population. See Appendix B for a copy of the questionnaire.

The purpose for measuring health status was two fold. First, the measurement of health status was utilized to measure significant difference between the two sample populations. The differences, if any, were attributed to the difference in access standards between the two populations. Silver Care enrollees were provided the same access standards as TRICARE Prime enrollees whereas non-enrollees relied rely on space available appointments and other health insurance. Second, the health status survey assisted in answering several questions. Some of these questions included: "What was the current health status of the Silver Care enrollees as opposed to the dual-eligible beneficiaries that relied on space available care? Was the population enrolled in the Silver Care Program a sicker population?

The overall goals of the patient satisfaction portion of the questionnaire were to measure the quality and access of health care provided by RACH and to identify significant differences in patient satisfaction and health status between the two dual-eligible populations. According to Murray (1988), "Patient satisfaction, a useful process measure of quality of care, is itself a desirable outcome of medical care and can now be measured with reliable and well-validated instruments" (p. 576). Personal satisfaction ratings are a subjective evaluation of health care because they represent the feelings of a patient versus an observer's evaluation of health care delivery (Ware, Synder, Wright & Davies, 1983).

The survey instrument was broken down into three portions: demographic information and items aimed at measuring general health status and patient satisfaction levels. The demographic information consisted of six questions that were used to verify patient demographic data and health care utilization. The health status portion contained one item which represented the health concept, health perception. The item was based on an individual's perception of their current health status. The patient satisfaction items consisted of 32-five point Likert-type response questions separated into 6 specific constructs: general satisfaction, access, availability, continuity, finances, and physician conduct (Murray, 1988 and Ware, Davies-Avery, and Stewart, 1978). The patient satisfaction portion of the survey consisted of items based on previous studies conducted on patient satisfaction questionnaires (PSQ). A study authored by Ware, Snyder, Write and Davies (1983) described the development of a 55 item Likert-type questionnaire designed to measure physician and medical services. The study conducted by Murray (1988) focused on a survey used to compare patient satisfaction levels between two health care plans: prepaid plan versus fee-for-service. The questions used in this study were stated in the form of opinions and were written in two forms: questions taken directly from Murray and Ware's surveys and questions modified, which promoted better understanding for the surveyed population. These items added to the validity of this study because of their use in well-documented patient satisfaction and health survey questionnaires.

The researcher conducted a telephonic survey utilizing the services of a small sample of approximately 10 dual-eligible beneficiaries. The sample consisted of five Silver Care enrollees and five Non-Silver Care enrollees. This process assisted in determining the average time to complete the survey and to make adjustments and corrections to the survey script. See Appendix C for copy of the finalized survey script. In addition, it provided the researcher with an

opportunity to collect comments, add clarity and to evaluate the validity of the survey.

The health status portion of the survey utilized one multi-choice scaled item (See Appendix B). The advantage to a multi-trait scaling method is that it enables the researcher to test the item for convergent and discriminate validity. The concept measured in this survey was health perception. Health perception is gauged by the ratings that an individual gives to his/her perceived health status in general (Stewart, Hays, and Ware, 1988).

The patient satisfaction section of the survey consisted of Likert-type response items. There are three advantages to using Likert-type questions. First, the use of identical response scales expedites the process of completing the survey. Second, it is easier to format a questionnaire when using the same response. Third, it is easier to revise items when the questions are structured as statements of opinion (Ware, et al., 1983). The Likert-type response questions adopt a five-point scale: strongly agree, agree, not sure, disagree and strongly disagree. The advantages of using a five point scale versus a two (agree versus disagree) or a three point scale (agree, not sure and disagree) are that the five point scale yields more information and provides more reliable responses. In addition, scales utilizing seven or more points do not increase the reliability of the survey (Ware et al. And Murray, 1988). The patient satisfaction portion of the survey in this study consisted of two sections: favorable and unfavorable statements (See Appendix B). The statements were coded to reflect the highest number as the most favorable evaluation of the medical care, services and greater satisfaction. These favorable and unfavorable statements were consistent with an opposition response set (ORS) which prevents patient bias because of the tendency to disagree with survey questions regardless of their content (Ware et al. and Murray, 1988).

The survey method utilized in this research study was telephonic. Telephonic surveys have several advantages that include the following:

1. The ability to obtain quick responses.
2. The cost of conducting telephonic surveys is lower than conducting personal interviews and mail out surveys.
3. The telephonic survey can cover a wider geographical region.
4. Telephonic surveys enable the administer to conduct lengthy form questionnaires with branching questions.
5. The quality control is much tighter than other survey methods.

On the other hand, telephonic surveys also have several disadvantages. The disadvantages to telephonic surveys are the following:

1. Telephonic surveys make it difficult to obtain physical measures.
2. Everyone in the sampled population may not have a telephone.
3. Telephonic survey can be easily confused with sales calls.
4. The behavioral cues are missed with conducting telephone surveys.
5. The surveyor is not able to present choices visually to an individual (Oleske, 1995).

The one major advantage of telephonic surveys over mail out surveys is the higher response rate (Cherkin, Hart, and Rosenblatt, 1988). The telephonic survey consisted of a random sample of 20% of each dual-eligible population. The sample size of each population was broken down into the following: 265 Silver Care enrollees and 180 Non-Silver Care beneficiaries. This percentage supplied sufficient sampling representation of each population (M. Perry, personal communication, October 29, 1997). The researcher employed the following method to select a random sample from the two populations.

1. The researcher obtained a data set on the dual-eligible beneficiaries for each population. The data consisted of name, age, gender, social security number, phone number, number of outpatient visits and number of inpatient bed days.
2. The researcher removed the first five numbers of the beneficiary's social security number leaving only the last four numbers.
3. The names were placed in ascending order according to the last four numbers of the social security number and a disinterested party selected a number from a random numbers table.
4. The researcher then took the number and selected the first twenty percent of each population below the selected random number (M. Perry, personal communication, October 29, 1997).

The telephonic survey consisted of the same questions for the two surveyed populations. The researcher informed the surveyee that upon completion of the survey all names were coded numerically in order to ensure privacy and patient confidentiality.

The four percentages of importance for the survey were the percent contacted, percent not contacted, percent that participated and the percent that did not participate in the survey. The calculations for these percentages are indicated below:

$$\text{*Percent Contacted} = \frac{\text{Number Contacted}}{\text{Sample Size}} \times 100$$

$$\text{*Percent Not Contacted} = \frac{\text{Number Not Contacted}}{\text{Sample Size}} \times 100$$

$$\text{*Percent Participated} = \frac{\text{Number of Participants}}{\text{Number Contacted}} \times 100$$

$$\text{*Percent Not Participating} = \frac{\text{Number of Non-Participants}}{\text{Number Contacted}} \times 100$$

These percentages were calculated for the sampled population. The researcher made four attempts to contact each beneficiary utilizing the following time periods:

1. Weekdays- between the hours of 9:00 AM to 5:00 PM.
2. Weekdays-between the hours of 7:00 PM to 9:00 PM.
3. Weekends-between the hours of 9:00 AM to 5:00 PM.

The researcher initially attempted to contact each beneficiary during the day. The second attempt occurred during the evening hours on weekdays. The final two attempts occurred during the weekend.

The operationalization of variables in this portion of the research study was broken down into two separate analyses. The dependent variables for these analyses were inpatient bed days and outpatient visits. Inpatient bed days was defined on page 44. However, in this portion of the study, bed days were totaled for each beneficiary included in the sample populations. The data covered the same period, April 1996 through December 1997. An outpatient visit was also defined on page 44. The same method was applied for totaling the number of outpatient visits for each beneficiary. The inpatient bed days and outpatient visits were obtained from CHCS.

The independent variables were age, gender, beneficiary status, enrollment status, health status and patient satisfaction. The patient's age, gender, and enrollment status were obtained from CHCS. Beneficiary status was obtained through the telephonic survey. The demographic data collected from the survey was utilized to validate the data obtained from the CHCS and also to address the issues and assumptions identified by the researcher. Age, gender, and enrollment

status were defined on pages 44-46 and will be coded in the same manner for this portion of the study. Beneficiary status was coded as a binary variable: retired military or other (1) and family member of a retiree (dependent) (0).

Health status for each beneficiary was based on the response to the one health perception question. The score was based on an individual's perception of their health status. A higher score indicated better health. The scale is broken down into the following:

-Five point scale.

5 = (Excellent)

4 = (Very Good)

3 = (Good)

2 = (Fair)

1 = (Poor)

The data obtained from this portion of the survey was consolidated and separated according to the two dual-eligible beneficiary populations. An analysis was conducted on the data utilizing the SPSS-statistical software package. The analysis of the health status data included descriptive statistics (means, standard deviations, etc.) on the one survey item. In addition, the percentage of beneficiaries in poor health was also calculated. The percentage of poor health was based on the response to the health status question. Poor health equated to the lowest 20% of scores in the sample population (Stewart, Hays, and Ware, 1988).

A One-Way ANOVA test was utilized to determine a significant difference in the health status of the two dual-eligible populations. The alpha probability was $p = .05$ for the data analysis.

The patient satisfaction survey data was grouped into sub-items according to the six specific constructs also known as global satisfaction scales. The global satisfaction scales were general satisfaction (4 items), access (4 items), availability (3 items), continuity (2 items), finances (2 items), and physicians conduct (14 items). Physician conduct had more questions because it was broken down into two subcategories: humaneness and technical quality. Humaneness refers to the care and concern that patients receive from their physician. Whereas, technical quality refers to the physician's abilities and technical competency based on a patient's encounter. The questions for each global satisfaction scale were broken down into the following: (See Appendix A for the actual items)

1. General satisfaction - Questions 1, 2, 18, 19
2. Access - Questions 3, 4, 20, 21,
3. Availability - Questions 5, 6, 22
4. Continuity - Questions 9, 26
5. Finances - Questions 7, 23
6. Physician Conduct - Questions 10, 11, 12, 13, 14, 15, 16, 17, 27, 28, 29, 30, 31, 32

There were also three questions, 8, 24, 25 which were included on the survey as validity checks (Ware, Snyder, Wright and Davies, 1984 and Murray, 1988). (Reference Appendix B for specific items).

The means and standard deviations were calculated for each survey question and separated into the two dual-eligible populations. A One-Way ANOVA test was used to determine significant differences between the means scores for the two populations. The alpha probability was $p = .05$ for the data analysis. The survey questions were then grouped into their specific global satisfaction scale. In order to measure the survey's reliability, a reliability analysis was

conducted on the survey items and the grouped data in order to compute Cronbach's alpha as a measurement of internal consistency and reliability. The reliability significance level utilized was $\alpha > .70$ (Johnson, Reineck, and Daigle-Bjerke, 1995). According to Cooper & Emory (1995), "Cronbach's alpha has the most utility for multi-item scales at the interval level of measurement" (p. 155). The items within each group are tested in order to identify significant positive item-to-item correlation and whole-part correlation. This process indicates whether a patient satisfaction questionnaire possesses strong content and construct validity (Cooper & Emory, 1995). The overall means scores for each beneficiary was broken down into the global satisfaction scales and a satisfaction score was determined for each construct. The means for each of the constructs were then totaled and divided by six, which represented the six constructs from which to determine an individual's overall satisfaction score. The scores were categorized according to the following satisfaction scores: very satisfied (≥ 3.50), satisfied (≥ 3.25 and < 3.50), neutral feelings (> 2.75 and < 3.25), dissatisfied (≤ 2.75 but > 2.50), and very dissatisfied (≤ 2.50) (Murray, 1988).

The descriptive statistics (means, standard deviations, frequencies, and comparison of means, calculation of F-Distribution and T-Significance were calculated using the statistical software package, SPSS for the data set containing the dependent and independent variables. A Pearson product-moment correlation coefficient (Pearson's r) was conducted on the data set in order to determine the relationship among the independent variables and to ensure that none of the variables had a perfect association. Variables with correlation coefficient scores of zero will denote no association. While, variables with coefficient scores of 1 express perfect association, which also implies dependency. Multiple linear regression analysis was conducted in order to determine the correlation coefficients between the dependent variables, inpatient bed days and outpatient visits and the independent variables: age, beneficiary status, enrollment, gender, health

status and patient satisfaction (Norusis, 1996). The backward method of linear regression was utilized with entry level of .05 and a removal level of .10 in order to determine the change in variance as each variable was removed and to determine impact on R^2 and Multiple R. An F-Test was conducted in order to determine the effects of each of the independent variables on the dependent variables. The alpha probability was $p = .05$ for the data analysis. Multiple linear regression is a method used for testing each independent variable or set of variables to determine or explain their confounding or unique effect on the dependent variable. In this study, multiple linear regression backward method was used to identify the predictor variables and to determine their unique variance in health care utilization. (Lozano, Fishman, VonKorff, and Hecht, 1997).

The independent variables were also tested for multicollinearity. Collinearity suggests interrelatedness between the independent variables in a linear regression model and will tend to provide the same information to a researcher. In order to determine collinearity an examination of the Tolerances and Variance Inflation Factor (VIF) was conducted. Tolerances that are lower than 0.1 and VIFs equal to or greater than 10 suggest collinearity (Murno & Page, 1993). The tolerance is a measure of collinearity. According to Murno and Page, "tolerance is the proportion of the variance in a variable that is not accounted for by the other independent variables" (p. 215).

Reliability and Validity. The reliability and validity of the data collected from the MEPRS and CHCS was assumed because both MEPRS and CHCS are used by the DOD MHS as standard systems for collecting inpatient and outpatient data. MEPRS is the information system used to determine health care costs. According to DoD 6010.13-M (1995), "MEPRS is the basis for establishing a uniform reporting methodology that provides consistent financial and operating performance data to assist managers who are responsible for healthcare delivery in the fixed military medical system" (p. 1-1). In a study conducted by Brooke, Hudak and Finstuen (1994),

the authors utilized MEPRS cost data as a method for estimating Graduate Medical Education (GME) costs in DoD MEDCENs. In another study conducted by Cardenas, Dowdy, Finstuen and Holland (1998), MEPRS cost data was utilized to determine the supply costs associated with treating burn patients at the U.S. Army Institute of Surgical Research Burn Center. In addition, the MEPRS data at RACH has undergone numerous assessments to verify its reliability and validity. In a recent evaluation conducted by Dr. Richard Guerin from Health Affairs and Dr. Steven Coventry from SRA, RACH's MEPRS data was found to be well within the five-percent tolerance for accuracy.

CHCS is the information system that collects data from the Defense Eligibility Enrollment Reporting System (DEERS), the Standard Inpatient Data Reporting (SIDR) system and the Ambulatory Data System (ADS). Sample collection by two independent operators on both MEPRS and CHCS indicated that the data were reliable. Furthermore, the same researcher served as the sole collector and processor of the data and used a strict entry and reviewing process for inputting the data into an Excel 7.0 spreadsheet, ensuring intra-rater reliability. Moreover, the researcher selected a random sample (10%) of the data to verify the accuracy of the inputted data. The researcher found no errors in the random sample selection.

A limitation identified with the MEPRS and CHCS data is the potential for human input error. The researcher assumed this error to be negligible and reviewed the data for obvious errors in the data reports.

The reliability and validity of the survey instrument was also addressed in the course of the study. The questions utilized were developed by John E. Ware, Jr., Ph.D.; an expert in patient satisfaction surveys. The items used in the survey instrument were taken from a study conducted by Ware, Snyder, Wright and Davies (1983) entitled "Defining and Measuring Patient Satisfaction

with Medical Care". The internal consistency reliability of the survey instrument was determined by conducting a reliability analysis to compute Cronbach's alpha. Cronbach's alpha was computed for all patient satisfaction items. The survey items were then grouped into the six specific constructs in order to calculate Cronbach's alpha. This will measure internal consistency and also display a significant positive item-to-item correlation and whole-part correlation which will indicate strong content and construct validity. Furthermore, the questions used in the survey have been utilized in other published studies verifying the validity of the survey instrument. The item utilized for health status was taken from a study conducted by Stewart, Hays, and Ware entitled "The MOS Short-Form General Health Survey". In a study entitled "The Status of Health Assessment 1994" by John E. Ware (1995), an individual perception of one's health status is considered one of the minimum standards of comprehensiveness in health questionnaires which provide content validity to the survey item.

Results

Historical data were obtained from CHCS to identify the dual-eligible population that utilized RACH from April 1996 through December 1997. The data consisted of demographic and utilization data. The variables were age, gender, enrollment, and inpatient bed days and outpatient visits. The demographic data were inputted into an Excel 7.0 spreadsheet followed by the inpatient bed days and outpatient visits for each beneficiary. The utilization data were categorized by the months in which health care services were provided to the beneficiary. Health care costs were calculated based upon the department that provided the care. Costs were based on the figures obtained from MEPRS. See Appendix A for the MEPRS costs for each department, which were broken down into two increments. The first increment covered the first year of the Silver Care Program, April 1996 through March 1997, and the second, April 1997

through December 1997. The data consisted of a dual-eligible user population, $N = 2,216$, which was broken down into two groups: Silver Care enrollees $n = 1324$ and space available care $n = 892$. Dual-eligible beneficiaries who died during the research period were analyzed separately from the living population. This population $N = 66$ was also broken down into Silver Care $n = 15$ and space available care $n = 51$. Assistance in identifying deceased beneficiaries was obtained from one of three sources: RACH's Managed Care and Patient Administration Divisions and through the administration of the health status and patient satisfaction survey.

Descriptive statistics were calculated for the two populations: the living and deceased dual-eligible populations. Descriptive statistics for the two populations are depicted in Table 1. Means and standard deviations were calculated for each variable. In comparing the living and deceased populations, the most obvious differences between the groups were the inpatient bed days and inpatient costs. The living population averaged .92 bed days with a cost of \$1,037.21; whereas, the deceased population averaged 6.88 bed days at an average cost of \$8,524.91 per beneficiary.

Descriptive statistics were also calculated for the Silver Care and space available populations that included the living and deceased beneficiaries. Tables 2 and 3 portray the descriptive statistics for the Silver Care and space available populations. Again, the most striking difference between the groups was the inpatient bed days and costs. Respectively, the average bed days and inpatient costs for the living and deceased Silver Care beneficiaries were .95 bed days and \$1092.13 and 2.73 bed days and \$1469.66. The space available figures were .88 bed days and \$955.68 for the living beneficiaries as opposed to the deceased population that averaged 8.10 bed days at a cost of \$10,278.80 per beneficiary. In addition, a notable difference existed in the outpatient visits between the Silver Care and space available living beneficiaries.

Table 1

Descriptive Statistics - Dual-Eligible Population Living and Deceased April 96 - December 97

<u>Dual-Eligible Population (Living)</u>				
<u>Variable</u>	<u>N</u>	<u>n</u>	<u>M</u>	<u>SD</u>
Age	2216		72	5.79
Gender	2216		.51	.50
Enrollment ^a	2216		.60	.49
Primary Care Manager ¹	2216			
Family Practice 1		345	.16	.36
Family Practice 2		312	.14	.36
Internal Medicine		667	.30	.46
No PCM		892	.40	.49
Inpatient Bed Days	2216		.92	3.49
Inpatient Costs	2216		\$1,037.21	\$4,038.22
Outpatient Visits	2216		16.40	21.38
Outpatient Costs	2216		\$1,677.75	\$2,154.78

<u>Dual-Eligible Population (Deceased^c)</u>				
<u>Variable</u>	<u>N</u>	<u>n</u>	<u>M</u>	<u>SD</u>
Age	66		74.15	6.94
Gender	66		.65	.48
Enrollment ^a	66		.23	.42
Primary Care Manager ¹	66			
Family Practice 1		7	.11	.31
Family Practice 2		1	.01	.12
Internal Medicine		7	.11	.31
No PCM		51	.77	.42
Inpatient Bed Days	66		6.88	10.02
Inpatient Costs	66		\$8,524.91	\$13,036.50
Outpatient Visits	66		15.64	16
Outpatient Costs	66		\$1,574.82	\$1,653.45

Note. N=2216 (Living) (Silver Care n=1324 and Non-Silver Care n= 892).

N=66 (Deceased) (Silver Care n=15 and Non-Silver Care n=51).

^aEnrollment (0=Non-Silver Care, 1=Silver Care Enrollment).

^bSilver Care enrollees are assigned to a PCM, NPCM = Space Available Population.

^cBeneficiaries who died during the research period (April 96 - December 97).

Table 2

Descriptive Statistics - Silver Care Beneficiaries Living and Deceased April 96 - December 97

<u>Variable</u>	<u>Silver Care Population (Living)</u>				<u>Minimum</u>	<u>Maximum</u>
	<u>N</u>	<u>n</u>	<u>M</u>	<u>SD</u>		
Age	1324		73.17	5.41	65	94
Gender	1324		.45	.50	0	1
Primary Care Manager ^a	1324					
Family Practice 1		345	.26	.44	0	1
Family Practice 2		312	.24	.42	0	1
Internal Medicine		667	.50	.50	0	1
Inpatient Bed Days	1324		.95	3.58	0	40
Inpatient Costs	1324		\$1,092.13	\$4,266.50	0	\$52,770.60
Outpatient Visits	1324		20.22	23.65	0	208
Outpatient Costs	1324		\$2,077.00	\$2,369.64	0	\$16,338.40

<u>Variable</u>	<u>Silver Care Population (Deceased^b)</u>				<u>Minimum</u>	<u>Maximum</u>
	<u>N</u>	<u>n</u>	<u>M</u>	<u>SD</u>		
Age	15		74.73	7.77	66	88
Gender	15		.40	.51	0	1
Primary Care Manager ^a	15					
Family Practice 1		7	.47	.52	0	1
Family Practice 2		1	.07	.26	0	1
Internal Medicine		7	.47	.52	0	1
Inpatient Bed Days	15		2.73	6.93	0	27
Inpatient Costs	15		\$2,561.59	\$5,656.63	\$0.00	\$21,177.50
Outpatient Visits	15		14.80	11.61	1	44
Outpatient Costs	15		\$1,469.66	\$1,091.94	\$99.55	\$4,185.68

Note. N=1324 (Silver Care Living).N=15 (Silver Care Deceased).^aSilver Care enrollees are assigned to 1 of 3 Primary Care Managers (FP1, FP2 or IM).^bBeneficiaries who died during the research period (April 96 - December 97).

Table 3

Descriptive Statistics - Non-Silver Care Beneficiaries Living and Deceased April 96 - December 97

<u>Variable</u>	<u>Non-Silver Care Population (Living^a)</u>				
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
Age	892	70.27	5.92	65	97
Gender	892	.60	.49	0	1
No PCM	892	1	0	1	1
Inpatient Bed Days	892	.88	3.35	0	40
Inpatient Costs	892	\$955.68	\$3,674.14	\$0.00	\$43,139.00
Outpatient Visits	892	10.76	15.88	0	114
Outpatient Costs	892	\$1,088.40	\$1,618.27	\$0.00	\$13,369.10

<u>Variable</u>	<u>Non-Silver Care Population (Deceased^a)</u>				
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>Minimum</u>	<u>Maximum</u>
Age	51	73.98	6.75	65	90
Gender	51	.73	.45	0	1
No PCM	51	1	0	0	1
Inpatient Bed Days	51	8.10	10.50	0	54
Inpatient Costs	51	\$10,278.80	\$14,077.30	\$0.00	\$73,490.20
Outpatient Visits	51	15.88	17.17	0	66
Outpatient Costs	51	\$1,605.75	\$1,793.30	\$0.00	\$6,832.66

Note. N=892 (Non-Silver Care Living).

N=15 (Non-Silver Care Deceased).

^aBeneficiaries who died during the research period (April 96 - December 97).

The average number of outpatient visits for the living Silver Care beneficiaries was 20.22 visits with an average outpatient cost of \$2,077.00; whereas, the living space available beneficiaries had an average of 10.76 outpatient visits and an average cost of \$1,088.40 per beneficiary.

In order to analyze the practice patterns among the three Silver Care PCMs, Family Practice 1, n = 345 (Living) and n = 7 (Deceased), Family Practice 2, n = 312 (Living) and n = 1 (Deceased), and Internal Medicine, n = 667 (Living) and n = 7 (Deceased), One-Way ANOVAs were calculated. The purpose of calculating the One-Way ANOVAs was to obtain means and

standard deviations for the three PCMs when compared to the variables of age, gender, inpatient bed days, inpatient costs, outpatient visits and outpatient costs. Tables 4 and 5 illustrate the descriptive statistics of the differences between PCMs for the Silver Care beneficiary population.

Table 4

Descriptive Statistics - Differences Between PCMs (Silver Care Population - Living)

	<u>n</u>	<u>N</u>	<u>Primary Care Manager</u>		
			Family Practice 1	Family Practice 2	Internal Medicine
			345	312	667
Age		1324			
<u>M</u>			72.66	72.50	73.74
<u>SD</u>			5.26	5.30	5.49
Gender		1324			
<u>M</u>			.42	.45	.47
<u>SD</u>			.49	.50	.50
Inpatient Bed Days		1324			
<u>M</u>			.65	.76	1.19
<u>SD</u>			2.39	3.29	4.17
Inpatient Costs		1324			
<u>M</u>			\$668.24	\$738.25	\$1,476.92
<u>SD</u>			\$2,482.36	\$3,125.29	\$5,302.47
Outpatient Visits		1324			
<u>M</u>			18.14	20.75	21.06
<u>SD</u>			20.11	22.63	25.68
Outpatient Costs		1324			
<u>M</u>			\$1,869.01	\$2,108.84	\$2,169.69
<u>SD</u>			\$2,050.58	\$2,246.11	\$2,568.13

Inferential statistics were excluded from the data analysis because statistical differences in PCM practice patterns were not required for this portion of the study. However, the researcher wanted to compare demographic, utilization and cost data for the Silver Care population. The most notable differences identified were the inpatient and outpatient utilization and costs between the PCMs. The average numbers of bed days in Table 2, for the living and deceased Silver Care

Table 5

Descriptive Statistics - Differences Between PCMs (Silver Care Deceased Population)

	<u>n</u>	<u>N</u>	<u>Primary Care Manager</u>		
			Family Practice 1	Family Practice 2	Internal Medicine
			7	1	7
Age		15			
<u>M</u>			75.86	74.00	73.71
<u>SD</u>			9.48	.00	6.95
Gender		15			
<u>M</u>			.43	1.00	.29
<u>SD</u>			.53	.00	.49
Inpatient Bed Days		15			
<u>M</u>			4.57	.00	1.29
<u>SD</u>			9.95	.00	2.36
Inpatient Costs		15			
<u>M</u>			\$3,917.02	\$0.00	\$1,572.09
<u>SD</u>			\$7,712.12	\$0.00	\$3,287.03
Outpatient Visits		15			
<u>M</u>			14.57	0	15
<u>SD</u>			10.47	0	14.31
Outpatient Costs		15			
<u>M</u>			\$1,410.50	\$0.00	\$1,499.61
<u>SD</u>			\$991.55	\$0.00	\$1,336.73

beneficiaries, respectively were .95 and 2.73 bed days. When broken down into the different PCMs, Family Practice 1, Family Practice 2 and Internal Medicine, the bed days for the living and deceased Silver Care beneficiaries were .65 and 4.57 bed days, .76 and .00 bed days, and 1.19 and 1.29 bed days. The average number of outpatient visits depicted in Table 2 for the living and deceased beneficiaries respectively were 20.22 and 14.80 visits. Family Practice 1 averaged 18.14 and 14.57 visits for the living and deceased populations. The average for Family Practice 2 was 20.75 and 0.00 visits; whereas, the Internal Medicine Clinic was 21.06 and 15.00 visits in the

same populations. When comparing utilization for the Silver Care living population, Internal Medicine averaged more bed days and outpatient visits than Family Practice 1 and 2.

The average inpatient costs, from Table 2, for the living and deceased Silver Care beneficiaries respectively were \$1,092.13 and \$2,561.59. When broken down into the different PCMs, Family Practice 1, Family Practice 2 and Internal Medicine, the inpatient costs for the living and deceased were respectively \$668.24 and \$3,917.02, \$738.25 and \$0.00, and \$1,476.92 and \$1,572.09. (See Tables 4 and 5) The average outpatient costs illustrated in Table 2 for the living and deceased Silver Care beneficiaries were \$2,077.00 and \$1,469.66. Family Practice 1 averaged \$1,869.01 and \$1,410.50 per living and deceased beneficiary. (See Tables 4 & 5) The average outpatient costs for Family Practice 2 were \$2,108.84 and \$0.00; whereas, the Internal Medicine averaged \$2,169.69 and \$1,499.61 for the living and deceased populations. (See Tables 4 & 5) When comparing costs for the living Silver Care population, the Internal Medicine Clinic again averaged higher inpatient and outpatient costs.

The data obtained from CHCS and MEPRS were broken down into monthly increments in order to calculate rates and trends for the dual-eligible population. The rates and trends calculated for this study included visits per beneficiary, outpatient costs per beneficiary, outpatient visits per thousand, outpatient costs per thousand, bed days per beneficiary, inpatient costs per beneficiary, bed days per thousand and inpatient costs per thousand. Appendices D through AA depict the data and calculation for the entire dual-eligible population. Appendixes D through O illustrate the data on the living dual-eligible population. Appendixes P through AA are for the deceased dual-eligible population. Tables 6 and 7 are summaries of Appendixes D through AA. These summaries include utilization, costs, and rates for the inpatient and outpatient data.

Table 6

Results-Analysis of Inpatient and Outpatient Utilization and Costs Data (Living Population)

	<u>Silver Care</u>	<u>Space Available</u>	<u>Population</u>
Outpatient Calculations/Rates			
Outpatient Visits	26,777	9,575	36,352
Outpatient Costs	\$2,749,945.42	\$967,273.59	\$3,717,219.01
Visits Per Beneficiary	20.22	10.76	16.40
Outpatient Costs Per Beneficiary	\$2,077.00	\$1,084.39	\$1,677.45
Outpatient Visits Per Thousand	20,224.32	10,760.31	16,404.33
Outpatient Costs Per Thousand	\$2,076,998.05	\$1,084,387.43	\$1,677,445.40
Inpatient Calculations/Rates			
Bed Days	1,262	787	2,049
Inpatient Costs	\$1,451,319.09	\$852,468.49	\$2,303,787.58
Bed Days Per Beneficiary	.953	.882	.925
Inpatient Costs Per Beneficiary	\$1,092.13	\$955.68	\$1,037.21
Bed Days Per Thousand	953.17	882.29	924.64
Inpatient Costs Per Thousand	\$1,092,132.45	\$955,682.16	\$1,037,215.33

Note. Total Population N=2216 (Silver Care n=1324 and Space Available Care n=892).

The focus of this analysis was to determine utilization and costs associated with the health care provided to the over 65 population. The living population total bed days was 2,049. Silver Care enrollees had 1,262 bed days; whereas, non-Silver Care enrollees had 787 bed days. When taking into account the deceased population, the total number of bed days for the dual-eligible population during the research period was 2,503 bed days. The break down of bed days was Silver Care – 1,303 and non-Silver Care – 1200 total bed days. Taking into account the entire population for each group and the number of bed days, Silver Care bed days per beneficiary was .97 and non-Silver Care bed days per beneficiary was 1.27.

Table 7

Results - Analysis of Inpatient and Outpatient Utilization and Costs Data
(Deceased Population^a)

	<u>Silver Care</u>	<u>Space Available</u>	<u>Population</u>
Outpatient Calculations/Rates			
Outpatient Visits	222	810	1,032
Outpatient Costs	\$21,044.93	\$81,877.12	\$102,992.05
Visits Per Beneficiary	14.800	15.882	15.636
Outpatient Costs Per Beneficiary	\$1,469.66	\$1,605.75	\$1,574.82
Outpatient Visits Per Thousand	14,800.00	15,882.35	15,636.36
Outpatient Costs Per Thousand	\$1,469,662.00	\$1,605,747.45	\$8,524,913.33
Inpatient Calculations/Rates			
Bed Days	41	413	454
Inpatient Costs	\$38,423.83	\$524,220.45	\$562,644.28
Bed Days Per Beneficiary	2.733	8.098	6.879
Inpatient Costs Per Beneficiary	\$2,561.59	\$10,278.80	\$8,524.91
Bed Days Per Thousand	2,733.33	8,098.04	6,878.79
Inpatient Costs Per Thousand	\$2,561,588.67	\$10,278,830.35	\$8,524,913.33

Note. Total Population N=66 (Silver Care n=51 and Space Available Care n=15).

^aDeceased population consists of beneficiaries who died between April 96-December 97.

The total inpatient cost for the entire dual-eligible population from April 96 through December 1997 was \$2,886,431.86. The breakdown of the inpatient costs was the following: living population - \$2,303,787.58 and the deceased population - \$562,644.28. In comparing inpatient costs between Silver Care and non-Silver Care beneficiaries, the Silver Care inpatient costs totaled \$1,489,742.92 with a per beneficiary cost of \$1,143.32. On the other hand, inpatient costs for the non-Silver Care beneficiaries totaled \$1,376,688.94. The cost per non-Silver Care beneficiaries was \$1,459.90.

Outpatient visits for the entire population, living and deceased, totaled 37,384 visits. The breakdown between the two populations was 36,352 visits for the living population and 1,032 visits for the deceased population. Silver Care enrollees had 26,999 total outpatient visits. The number of visits per Silver Care enrollee was 20.16 visits. The non-Silver Care beneficiaries had 10,385 outpatient visits, which equated to 11.01 visits per beneficiary.

The total outpatient cost for the entire dual-eligible population was \$3,820,210.06. The breakdown of the outpatient costs was as follows: living population - \$3,717,219.01 and the deceased population - \$102,992.05. In comparing outpatient costs between Silver Care and non-Silver Care beneficiaries, the Silver Care outpatient costs totaled \$2,770,990.35, which equated to \$2,069.47 per beneficiary. In comparison, outpatient costs for the non-Silver Care beneficiaries totaled \$1,049,150.71 with a per beneficiary cost of \$1,112.57. The total cost of providing care to the dual-eligible population at RACH from April 1996 through December 1997 was \$6,686,662.92, while the cost per dual-eligible beneficiary was \$3,017.45.

The four rates of interest for this study were inpatient costs per beneficiary, outpatient costs per beneficiary, bed days per beneficiary and outpatient visits per beneficiary. These figures are equal to the means provided in Tables 1, 2 and 3. Two additional rates of interest in a managed care environment are the number of bed days per thousand and the clinical visits per thousand. Table 5 and 6 provide these rates for the two populations broken down into living and deceased beneficiaries. These figures allow MCOs to plan and forecast changes in managed care plans (Capitation Strategy, 1994).

The second analysis of this research study consisted of a data set that contained demographic information and historical health care utilization at RACH and the results of a survey instrument on 20% of the dual-eligible population. To better understand the over 65-user

population at RACH, the researcher conducted a telephonic survey aimed at measuring a sampled population's health status and patient satisfaction. See Appendix B for the health status and patient satisfaction survey. A random sample of 20% of the population, $N = 445$, was selected utilizing the last four digits of the beneficiaries social security number. A disinterested person selected a random sample utilizing a random number table. The random sample selection consisted of 265 Silver Care enrollees and 180 non-Silver Care beneficiaries. The researcher attempted to contact these beneficiaries on three different time intervals that included weekdays, weekends and day and evening hours. The researcher contacted 339 out of 445 selected in the random sample with a contacted percentage of 76.2 %. The non-contacted percentage was 23.8%. The breakdown of individuals not contacted were the following:

1. Wrong number - 45 beneficiaries
2. Phone disconnected - 16 beneficiaries
3. Unable to contact - 31 beneficiaries
4. Deceased - 14 beneficiaries

The data on the identified deceased beneficiaries were included in the deceased population analyzed for cost and utilization found on Tables 1, 2 and 3. Despite contacting 339 beneficiaries only 234 were willing to participate in the survey. The percentage of beneficiaries willing to participate in the survey was 69.1 %, as opposed to 105 beneficiaries or 30.9% who wished not to participate. The percentage of Silver Care enrollees who participated in the survey was 72.6 %. While, only 64 or 27.3% non-Silver Care beneficiaries were willing to participate. The average time to conduct a survey was 13.5 minutes.

Cronbach's Alpha was computed as a measurement of the survey's reliability. Table 8 is the results of the reliability analysis conducted on the patient satisfaction portion of the survey

instrument. Cronbach's Alpha for all survey items in the patient satisfaction items (Items = 29)

Table 8

Reliability Analysis - Cronbach's Alpha for Survey and Individual Constructs

	<u>N</u>	<u>Items</u>	<u>Cronbach's Alpha</u>
Patient Satisfaction Survey	234	29	.9580*
Access	234	4	.8669*
Availability	234	3	.6506* #
Continuity of Care	234	2	.9575*
Financial	234	2	.7644*
General Satisfaction	234	4	.8569*
Physician Conduct	234	14	.9313*

Note. * $\alpha > .5$ Cronbach's index of internal consistency.

Statistical significance identified between the populations.

and all survey respondents ($N = 234$) was computed at .9580, indicating strong reliability of the survey instrument. Survey responses were then grouped into their constructs. Cronbach's Alpha was computed among the constructs as a measure of internal consistency. See Table 8 for each construct's alpha computation. All constructs displayed a significant positive item-to-item correlation and whole-part correlation except availability, which indicated strong content and construct validity. A low computation, $\alpha < .70$, was used to identify weak items that can be removed in subsequent analysis. Again, the only global construct found to be below .70 was availability. Even though the averages were not stable for availability at $\alpha > .70$, statistical differences still occurred between the populations. Items found to be strong factors will yield acceptable alpha coefficients, $\alpha > .70$, which provides evidence of internal reliability as well as evidence of construct validity (Murno and Page, 1993). The results illustrated that each construct was a significant contributor and that none of the construct in the survey instrument displayed a negative contributor.

The demographic and health care utilization data for the sampled population was obtained from the population data set used in the population analysis. The month by month health care utilization was removed leaving total bed days and outpatient visits for each beneficiary. The descriptive statistics (means and standard deviations) for the entire sampled population and the break down between space available care and Silver-Care are depicted in Table 9. The most

Table 9

Descriptive Statistics - Demographic, Utilization and Cost Data From The Sampled Dual-Eligible Population

<u>Variables</u>	<u>N</u>	<u>n</u>	<u>Population</u>		<u>Space Available</u>		<u>Silver Care</u>	
			<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Age	234		72.07	5.56	69.00	4.35	73.23	5.54
Gender	234		.55	.50	.59	.50	.53	.50
Beneficiary Status	234		.56	.50	.58	.50	.55	.50
Enrollment	234		.73	.45				
PCM	234							
Family Practice 1		44	.19	.39			.26	.44
Family Practice 2		43	.18	.39			.25	.43
Internal Medicine		83	.35	.48			.49	.50
No PCM		64	.28	.45	1.00	.00		
Inpatient Bed Day	234		.89	2.79	.36	.95	1.09	3.20
Inpatient Costs	234		\$954.55	\$3,092.52	\$338.82	\$913.15	\$1,186.35	\$3,560.47
Outpatient Visits	234		22.32	25.24	15.63	18.63	24.84	26.94
Outpatient Costs	234		\$2,300.37	\$2,522.33	\$1,559.00	\$1,874.00	\$2,579.47	\$2,678.77

Note. Total Population N=234 (Silver Care n= 170 and Space Available Care n=64).

notable differences between the Silver Care and space available populations were the age and utilization variables (bed days and outpatient visits). Health care costs were also included but only as a measurement of health care utilization. The difference in average age between the groups was 4.23 years. The average bed days for space available beneficiaries was .36 bed days

as opposed to 1.09 bed days for Silver Care enrollees. Space available users averaged 15.63 outpatient visits; whereas, the average for Silver Care enrollees was 24.84 visits. Three additional variables were added to the analysis which included beneficiary status (retiree or dependent), civilian primary care provider and civilian specialty care provider. Fifty six percent of the beneficiaries surveyed were retired military of which one was a retired NOAA administrator. It is also important to note the distribution among the RACH PCMs for the surveyed Silver Care enrollees. The percentages enrolled to the three PCMs (Family Practice 1, Family Practice 2 and Internal Medicine) are depicted on Table 9.

The goal of the second analysis was two fold. First, the researcher wanted to measure the health status and patient satisfaction levels of the sampled population. The purpose of measuring these variables was to identify significant differences in health status and patient satisfaction among the sampled population. The second goal was to identify functional relationships between health care utilization when taking into account a beneficiary's health status, patient satisfaction, and demographic data variables.

The descriptive statistics (means and standard deviations) were calculated on the survey for the sampled population ($N = 234$), and the two groups within the population: Silver Care enrollees ($n = 170$) and space available beneficiaries ($n = 64$). The results of the descriptive statistics analysis for the health status and patient satisfaction global constructs are depicted in Table 10. The descriptive statistics for each survey items are outlined in Appendix AB.

Health status showed little difference between Silver Care enrollees and space available beneficiaries. The overall health status of the space available beneficiaries was categorized as being in the upper half of the "good" category. As opposed to the Silver Care enrollees, whose health status mean was in the lower half of the "very good" category. A One-Way ANOVA was

Table 10

Descriptive Statistics - Health Status, Patient Satisfaction Global Constructs, and Patient Satisfaction

	Population			Space Available		Silver Care	
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Health Status	234	2.97	1.09	2.80	1.03	3.04	1.10
<u>Global Constructs^a</u>							
Access	234	3.98	.99	2.78	.78	4.43	.61
Availability	234	3.99	.81	3.07	.72	4.29	.60
Continuity of Care	234	3.84	1.17	2.75	1.06	4.26	.92
Financial	234	4.20	.77	3.42	.64	4.50	.59
General Satisfaction	234	4.20	.68	3.56	.76	4.44	.47
Physician Conduct	234	4.35	.50	3.84	.39	4.53	.40
Overall Patient Satisfaction ^b	234	4.09	.70	3.24	.48	4.41	.46

Note. Total Population $N=234$ (Silver Care $n=170$ and Space Available Care $n=64$).

^aGlobal Constructs were calculated by totaling the survey items and dividing by the number of survey items in each construct.

^bOverall Patient Satisfaction was calculated by totaling the global constructs and dividing by the number of constructs.

conducted in order to identify significant differences in health status based on enrollment. The One-Way ANOVA test revealed that the difference in health status based on enrollment was not statistically significant, with $F(1,233) = 2.253$, $p > .05$.

The most notable differences were in the global constructs and overall patient satisfaction. The mean scores for the entire population ($N = 234$) and the two populations, Silver Care ($n = 170$) and non-Silver Care ($n = 64$), were categorized based on the five descriptive categories. The five descriptive categories were based on the following satisfaction scores: very satisfied (≥ 3.50), satisfied (≥ 3.25 and < 3.50), neutral feelings (> 2.75 and < 3.25), dissatisfied (≤ 2.75 but > 2.50), and very dissatisfied (≤ 2.50) (Murray, 1988). Based on these scores, the sampled population was

categorized as being very satisfied with the health care provided at RACH. The means for each global construct also scored in the very satisfied category. However, when looking between the groups, each global construct and overall patient satisfaction were notably different. The Silver Care enrollees' overall patient satisfaction scores and global construct values all scored in the very satisfied category, as opposed to the non-Silver care beneficiaries' scores which ranged from neutral to very satisfied. Non-Silver Care beneficiaries were neutral in the following global constructs: access, availability, and continuity of care. However, these beneficiaries were satisfied in the constructs of financial and general satisfaction and very satisfied with physician conduct. The population's overall patient satisfaction score was categorized as neutral. One-Way ANOVA testing was conducted on the six global constructs and on overall patient satisfaction to identify significant differences between the two groups. The results of the One-Way ANOVA test conducted on the six global constructs are portrayed in Table 11. The One-Way ANOVA for each specific global construct are found in Appendixes AC through AH. The results of the One-Way ANOVA revealed that there was a statistical significance between the mean scores for the two groups in each of the global constructs. The F values for each category depicted in the table were significant at the $p < .001$ level.

The global construct with the highest statistical significance was access. One-Way ANOVA testing revealed that there was a statistically significant difference between the two groups, with $F(1,233) = 291.058$, $p < .0001$. The financial construct was the next highest construct that showed statistical significance. The One-Way ANOVA testing revealed a statistical significance, with $F(1, 233) = 145.240$, $p < .001$. The score that depicted the most significance was the difference in overall patient satisfaction levels between the two groups. One-Way ANOVA testing was conducted to determine the difference in overall patient satisfaction between

Table 11

One-Way ANOVA Testing - Patient Satisfaction Survey (Global Constructs) vs Enrollment

<u>Survey Item</u>		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Access	Between Groups	126.754	1	126.754	291.058 *	.000
	Within Groups	101.035	232	.435		
	Total	227.788	233			
Availability	Between Groups	59.103	1	59.103	144.904 *	.000
	Within Groups	94.627	232	.408		
	Total	153.730	233			
Continuity of Care	Between Groups	105.438	1	105.438	113.448 *	.000
	Within Groups	215.619	232	.929		
	Total	321.057	233			
Financial	Between Groups	53.750	1	53.750	145.240 *	.000
	Within Groups	85.858	232	.370		
	Total	139.608	233			
General Satisfaction	Between Groups	35.977	1	35.977	114.229 *	.000
	Within Groups	73.069	232	.315		
	Total	109.046	233			
Physician Conduct	Between Groups	22.056	1	22.056	141.032 *	.000
	Within Groups	36.283	232	.156		
	Total	58.339	233			

Note. * $p < .001$

the two groups. The results of the One-Way ANOVA are exhibited in Table 12. The results of the One-Way ANOVA testing revealed that there was a statistically significant difference in overall patient satisfaction, with $F(1, 133) = 282.845$, $p < .0001$. This finding implied that Silver Care enrollees were more satisfied with RACH than beneficiaries who depended on space available care.

Table 12

One-Way ANOVA Testing - Patient Satisfaction vs Enrollment

	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Between Groups	61.991	1	61.991	282.845 *	.000
Within Groups	50.847	232	.219		
Total	112.838	233			

Note. *p <.001

Again, the second goal of the survey results and analysis was to identify functional relationships and to determine predictor variables of health care utilization. The dependent variables for this study were inpatient bed days and outpatient visits. A review of the data in Table 9 revealed that the sampled population's mean and standard deviation for the dependent variable, inpatient bed days are .89 bed days and 2.79 bed days. The mean and standard deviation for the dependent variable, outpatient visits, were 22.32 visits and 25.24 visits. The independent variables for this analysis are age, beneficiary status, enrollment, gender, health status and patient satisfaction. The means and standard deviations for the independent variables are depicted in Table 9. A Pearson product-moment correlation coefficient (Pearson's r) was conducted on the data set in order to determine the relationship among the independent variables and to ensure that none of the variables had a perfect association. The Pearson's correlation coefficient matrix for the independent variables is depicted in Table 13. In observing the significance between the independent variables in Table 13, it is evident that none of the independent variables display perfect association nor evidence of dependency. Variables with a correlation coefficient value of zero signify no association between the variables; whereas, coefficient scores of one imply perfect

Table 13

Pearson's Correlation Coefficients

	Patient Satisfaction	Health Status	Gender	Enrollment	Beneficiary Status	Age
Patient Satisfaction	1.000	.111*	-.031	.741**	-.015	.258**
Health Status	.111*	1.000	-.136*	.098	-.152*	-.027
Gender	-.031	-.136*	1.000	-.058	.966**	.102
Enrollment	.741**	.098	-.058	1.000	-.028	.340**
Beneficiary Status	-.015	-.152*	.966**	-.028	1.000	.140*
Age	.258**	-.027	.102	.340**	.140*	1.000
Outpatient Visits						
Bed Days						

Note. * Correlation is significant at the .05 level (1-tailed)

**Correlation is significant at the .01 level (1-tailed)

association. Gender and beneficiary status were the only variables that showed almost perfect association with a Pearson's Correlation Coefficient score of .966. Furthermore, patient satisfaction and enrollment also had a high correlation coefficient score of .741 which can also imply dependency between these variables (Norusis, 1996).

A multiple linear regression backward method was conducted to determine predictor variables of health care utilization. In backward elimination, all independent variables are included in the initial regression model and are sequentially removed utilizing $\alpha = .05$ specified error and a removal level of .10. Variables are no longer removed from the regression model when their removal results in a significant decrease in R^2 (Norusis, 1996).

The statistical software package, SPSS was utilized to conduct the multiple linear regression backward method on each of the regression models. The first model tested was that inpatient bed days was a function of the independent variables of age, beneficiary status,

enrollment, gender, health status and patient satisfaction. The linear regression model provided below includes the dependent variable, $Y' = \text{Inpatient Bed Days}$, and the five independent variables, age, beneficiary status, enrollment, gender, health status and patient satisfaction.

(Inpatient Bed Days)

$$Y' = a_0U + b_1 \text{ Age} + b_2 \text{ Beneficiary Status} + b_3 \text{ Enrollment} + b_4 \text{ Gender} + b_5 \text{ Health Status} + b_6 \text{ Patient Satisfaction}$$

Table 14 outlines the variables that were removed from the linear regression model utilizing the linear regression backward method. The predictor variables of age, beneficiary status, enrollment

Table 14

Variables Removed From Final Regression Model ($Y = \text{Inpatient Bed Days}$)

<u>Variable</u>	<u>Beta In</u>	<u>Partial</u>	<u>Tolerance</u>	<u>VIF</u>	<u>Min Tolerance</u>	<u>t</u>	<u>Sig t</u>
Age	-.016	-.016	.930	1.075	.919	-.250	.803
Beneficiary Status	.037	.038	.977	1.024	.965	.571	.568
Enrollment	-.053	-.037	.450	2.220	.449	-.565	.572
Gender	.049	.050	.981	1.019	.970	.761	.448

Note. All excluded variables were found to be insignificant at $\alpha < .05$ (Sig t).

and gender all have $\alpha > .05$ (Sig. T) and were not included in the final regression equation. Table 15 depicts the variables that were included in the final regression model and were not eliminated utilizing the backward linear regression method. The independent variables of health status and patient satisfaction were significant with $\alpha < .05$ (Sig. T).

The variance in the final regression that was accounted for in the dependent variable, inpatient bed days, by the independent variables, health status and patient satisfaction was 7.8%, ($R^2 = .078$). The predictive value, (Multiple R), for the final linear regression model is .279,

Table 15

Variables in Final Regression Model (Y = Inpatient Bed Days) (N=234)

Variable	B	SE B	95% Confidence Interval for B		Beta	Tolerance	VIF	t	Sig t
			LB	UB					
Health Status	-5.200	.163	-.842	-.198	-.202	.988	1.013	-3.179	.002*
Patient Satisfaction	.868	.255	.366	1.371	.216	.988	1.013	3.404	.001*
Constant	-1.122	1.115	-3.320	1.075				-1.006	.315

Note. *p<.05.

which means that the predictive frequency, 28%, was acceptable in the model. Table 16 outlines the Multiple R, R Square, Adjusted R Square and the Standard Error of this linear regression model. An ANOVA Test was conducted on the final regression model to test the model for statistical significance. The regression model was found to be statistically significant at $F(2, 232) = 9.763$, $p = .000$.

Furthermore, the independent variables were tested for multicollinearity. Collinearity suggests interrelatedness between the independent variables in a linear regression model and will tend to provide the same information to a researcher (Munro & Page, 1993). The Tolerances and Variance Inflation Factor (VIF) are outlined in Table 14 and 15. Tolerances that are lower than 0.1 and VIFs equal to greater than 10 suggest collinearity. In examining Table 14 & 15, one finds that none of the predictor variables display collinearity.

The final linear regression model, using inpatient bed days as the dependent variable and upon removal of the independent variables that are insignificant, is portrayed in Table 17. The calculated regression constant of the dependent variable, inpatient bed days, and the partial regression coefficient's of determination for the two predictor variables, health status and patient

Table 16

Proportion of Variability Explained by Regression Model (Y = Inpatient Bed Days)

Multiple R	.279		
R Square	.078		
Adjusted R Square	.070		
Standard Error	2.690		
Analysis of Variance			
	DF	Sum of Squares	Mean Square
Regression	2	141.63	70.82
Residual	231	1675.48	7.25
F=	9.763	Signif F = .000	

Table 17

Estimated Regression Equation - Inpatient Bed Days

$$Y' = a_0 + b_1 \text{Health Status} + b_2 \text{Patient Satisfaction}$$

Becomes

$$Y' = -1.122 + (-.520 * \text{Health Status}) + (.868 * \text{Patient Satisfaction})$$

- Y is the dependent variable and represents the number of inpatient bed days.
 - -1.122 is the regression constant, or the Y intercept
 - Health Status and Patient Satisfaction represents the predictor variables
 - -.520 and .868 represent the values for the least square's regression weights for the predictor variables
-

satisfaction are provided in Table 17.

The second model tested was outpatient visits as a function of the independent variables of age, beneficiary status, enrollment, gender, health status and patient satisfaction. The linear

regression provided below includes the dependent variable, $Y' = \text{Outpatient Visits}$, and the five independent variables, age, beneficiary status, enrollment, gender, health status and patient satisfaction.

(Outpatient Visits)

$$Y' = a_0U + b_1 \text{ Age} + b_2 \text{ Beneficiary Status} + b_3 \text{ Enrollment} + b_4 \text{ Gender} + b_5 \text{ Health Status} + b_6 \text{ Patient Satisfaction}$$

Table 18 depicts the variables that were removed from the linear regression model utilizing the linear regression backward method. The predictor variables of beneficiary status, enrollment and

Table 18

Variables Removed From Final Regression Model ($Y = \text{Outpatient Visits}$)

<u>Variable</u>	<u>Beta In</u>	<u>Partial</u>	<u>Tolerance</u>	<u>VIF</u>	<u>Min Tolerance</u>	<u>t</u>	<u>Sig t</u>
Beneficiary Status	.055	.061	.957	1.045	.911	.930	.353
Enrollment	-.132	-.097	.426	2.345	.426	-1.478	.141
Gender	.057	.064	.970	1.031	.918	.963	.337

Note. All excluded variables were found to be insignificant at $\alpha < .05$ (Sig t).

gender all have $\alpha > .05$ (Sig T) and were excluded from the final regression equation. Table 19 depicts the variables that were included in the final regression model. The independent variables of age, health status and patient satisfaction were significant with $\alpha < .05$ (Sig T).

In the final regression model, 21.9 percent ($R^2 = .219$) of the variance was accounted for in the dependent variable, outpatient visits, by the independent variables, age, health status and patient satisfaction. The predictive value, (Multiple R) for the final linear regression model was .468. This meant that the predictive frequency of 46.8% was acceptable for the multiple linear regression model. Table 20 outlines the Multiple R, R Square, Adjusted R Square and the Standard Error of this regression model. An ANOVA Test was conducted on the final regression

Table 19

Variables in Final Regression Model (Y = Outpatient Visits) (N=234)

<u>Variable</u>	<u>B</u>	<u>SE B</u>	95% Confidence Interval for B		<u>Beta</u>	<u>Tolerance</u>	<u>VIF</u>	<u>t</u>	<u>Sig t</u>
			<u>LB</u>	<u>UB</u>					
Age	-.697	.274	-1.237	-.156	-.153	.930	1.075	-2.540	.012*
Health Status	-7.068	1.366	-9.759	-4.378	-.304	.984	1.016	-5.176	.000*
Patient Satisfaction	14.738	2.205	10.394	19.083	.406	.919	1.088	6.685	.000*
Constant	33.194	19.934	-6.083	72.471				1.665	.097

Note. * $p < .05$

Table 20

Proportion of Variability Explained by Regression Model (Y = Outpatient Visits)

Multiple R	.468
R Square	.219
Adjusted R Square	.209
Standard Error	22.460

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	32497.53	10832.51
Residual	230	115993.40	504.32

F= 21.479 Signif F = .000

model to test the model for statistical significance. The regression model was found to be statistically significant at $F(3, 230) = 21.479$, $p = .000$. Furthermore, the independent variables were tested for multicollinearity. In examining Tables 18 & 19, one will find that none of the predictor variables display collinearity.

The final linear regression model, using outpatient visits as the dependent variable and upon removal of the independent variables that are insignificant, is portrayed in Table 21. The

Table 21

Estimated Regression Equation - Outpatient Visits

$$Y' = a_0u + b_1\text{Age} + b_2\text{Health Status} + b_3\text{Patient Satisfaction}$$

Becomes

$$Y' = 33.194 + (-.697 * \text{Age}) + (-7.068 * \text{Health Status}) + (14.738 * \text{Patient Satisfaction})$$

- Y is the dependent variable and represents the number of outpatient visits.
 - 33.194 is the regression constant, or the Y intercept.
 - Age, Health Status, and Patient Satisfaction represents the predictor variables.
 - -.597, -7.068 and 14.738 represent the values for the least square's regression weights for the predictor variables.
-

calculated regression constant for the dependent variable, inpatient bed days, and the partial regression coefficient's of determination for the two predictor variables, health status and patient satisfaction are provided in Table 21.

Discussion

In reviewing the results of this extensive data analysis, the researcher was able to make a number of determinations. In addition, the results clarified many issues and assumptions that were identified in the course of conducting this research study.

The in-depth analysis of the demographic, utilization and cost data obtained between April 96 and December 1997, revealed a number of key findings. The data analysis was broken down into living and deceased populations according to their enrollment status. The two over 65 populations utilizing RACH for health care include beneficiaries who are enrolled in the Silver

Care Program and beneficiaries who rely on space available care. This analysis enabled the researcher to determine the costs associated with providing health care to each of the groups over a 20-month period. The descriptive statistics provided a general overview of the entire over 65 population.

The total costs for providing both inpatient and outpatient health care to 2,216 over 65 beneficiaries was \$6.69 million dollars, excluding pharmaceutical costs. In addition, the costs associated with treating these beneficiaries at DoD MEDCENs, when transferred or referred, were likewise excluded. The breakdown of costs between Silver Care and non-Silver Care (space available) beneficiaries for both inpatient and outpatient care were astounding. When reviewing inpatient costs, there was a dramatic difference between the two groups. However, when costs associated with treating the deceased beneficiaries were included, the costs and bed days were equivalent. The average inpatient cost per non-Silver beneficiary was \$1,459.90 as opposed to Silver Care enrollees whose per beneficiary costs was \$1,112.58. The contrast between the two groups was approximately \$347 per beneficiary. Furthermore, the inpatient bed days per beneficiary for non-Silver-Care was 1.27 bed days; whereas, Silver-Care was .97 bed days. This data analysis clearly advocates the "managed care concept" that managing the health care of a population or group will reduce inpatient utilization and expenditures (Kongstvedt, 1996, and Coile, 1994).

Another significant discovery in analyzing the data was the difference in costs associated with those beneficiaries who died during the research period. In the 20-months, 66 beneficiaries passed away and the inpatient costs associated with these beneficiaries totaled \$562,644.28, which equated to \$8,524.91 per beneficiary. This data strongly supports the research conducted by Lubitz and Riley (1993) which found that Medicare beneficiaries who are in their last 30 days

of life account for 40 percent of the medical expenditures. When comparing the costs associated with inpatient care, costs per deceased beneficiary was considerably higher. This group surpassed the living beneficiaries by \$7,485.29 per beneficiary. This is a clear indication that health care costs increase as an individual nears the end of life. As their health diminishes, the need for hospitalization and long term care become inherent (Feldstein, 1994). This is where the role of a utilization management (UM) nurse becomes vital to the success of a managed care plan. UM nurses are responsible for ensuring unnecessary hospitalizations and procedures that are not provided or performed and for providing proper discharge planning. Furthermore, a method for offsetting high costs in the last month of life is the proper utilization of hospice programs. It is estimated that an individual with terminal cancer could save Medicare \$2,737 by enrolling in a hospice program (Kongstvedt, 1996). The role of utilization management personnel is key to the success of the TRICARE Senior Program. The proper management of beneficiaries throughout the program's existence will directly impact the ability to control inpatient costs per beneficiary.

Moreover, a method of decreasing inpatient costs and utilization is to ensure access to outpatient services. The data analysis clearly indicated that there was a variance in outpatient utilization and cost between the two groups. The Silver Care enrollees had 26,997 outpatient visits; whereas, the non-Silver Care beneficiaries had 10,385 visits. Silver Care enrollees averaged 20.16 visits per enrollees and the non-Silver Care utilized 11.01 outpatient visits per beneficiary. The cost associated with providing outpatient services to the entire dual-eligible population (living and deceased) was \$3.82 million dollars. The outpatient cost for the Silver Care group was \$2.77 million dollars with a cost per beneficiary of \$2,069.45, as opposed to the non-Silver Care whose outpatient costs were \$1.05 million dollars and a per beneficiary cost of \$1,112.56. The variation in outpatient costs was attributed to the difference in access standards.

The Silver Care enrollees are given a higher priority for appointments.

The differences in utilization and costs among the three PCMs exhibited notable distinctions. Silver Care enrollees are assigned to one of three PCMs. The distribution of enrollees among the PCMs is as following: Family Practice 1 – 345 enrollees, Family Practice 2 – 312 enrollees and Internal Medicine – 667 enrollees. There were little differences in outpatient utilization among the three PCM. However, inpatient bed days and costs were remarkably higher for the Internal Medicine Clinic. The Internal Medicine Clinic averaged almost .5 more bed days and \$500 more per beneficiary than the two Family Practice clinics. According to COL Dean Giulitto, Deputy Commander for Clinical Services at RACH, the differences between PCMs are probably attributed to a sicker population and differences in practice patterns (D. Giulitto, personal communication, April 26, 1998). The survey results indicated that the average health status of the beneficiaries enrolled with the Internal Medicine Clinic was 2.98 which was the identical score of the beneficiaries enrolled in Family Practice 1. The average score for the Family Practice 2 enrollees was 3.28. Based on the survey results, the Family Practice 2 Clinic appeared to serve the healthiest over 65 population.

The rates, inpatient bed days and costs per thousand and outpatient visits and costs per thousand, were calculated in order to provide the staff at RACH with planning figures for the TRICARE Senior Program. Furthermore, the rates determined by these calculations are adopted by MCOs across the country as a method of tracking daily costs and utilization which are vital in a capitated environment (personal conversation Dr. Maxey Dell McKnight, Jr., First Care – Hendrick Health System, March 26, 1998).

Appendixes D-AA provide a thorough breakdown of the monthly utilization, costs and rates that were determined for the groups within the dual-eligible population. The analysis was

also broken down into living and deceased populations. In reviewing the data, trends and graphs provided in Appendixes D-AA, the researcher discovered several significant findings. The most notable was the downward trend in utilization and cost over the 20-month research period. Appendixes D-I (living population) and P-U (deceased population) depicts bed days and cost for each group. In addition, the appendixes illustrate that the number of bed days and costs are continuously declining over time. When reviewing the data for the living population, the number of bed days has dropped from a monthly average in April-June 1996 of 160 bed days to 57 bed days per month in October 97-December 97. In the same period, inpatient costs declined from \$174,000 to \$65,000 per month.

Outpatient visits illustrated in Appendixes J-O (living population) and V-AA (deceased population) portrays identical findings as those found for inpatient utilization and cost. The trend in outpatient visits indicates a gradual decline in outpatient utilization. The use of outpatient services dropped from 2,006 visits per month in April-June 1996 to 1,450 visits per month in October-December 1997. The outpatient costs associated with providing these services also dropped from \$183,000 in April-June 1996 to \$172,000 in October-December 1997. The deceased population was not included in this trend analysis because the researcher was unable to identify the exact month of death for 50% of the population. The decline in health care utilization and costs among the dual-eligible population at RACH is attributed to a number of factors which include the implementation of TRICARE and access standards, restrictions placed on access, institution of utilization management, technological advances, and the enrollment of this population in Medicare.

First, the implementation of TRICARE in October 1993 resulted in turbulent changes in the health care received by the over 65 dual-eligible population. The TRICARE program was

designed for beneficiaries who were eligible for CHAMPUS benefits. Consequently, millions of dual-eligible beneficiaries over 65 were excluded from the program. Their only options were to enroll in the Medicare program or rely on space available care at DoD MTFs.

Second, restrictions on access and the implementation of access standards by the TRICARE program placed the dual-eligible population at the bottom of the priority list. As mentioned earlier, dual-eligible beneficiaries must rely on space available care which at times is difficult to obtain at DoD MTFs. Furthermore, the implementation of access standards resulted in beneficiaries being screened for appointments based on the severity of their illnesses. Emergency conditions are seen immediately, urgent conditions are seen within 24 hours and non-urgent or routine appointments are provided within a 7-day period (Your Military Health Plan, 1997). The implementation of these access standards has contributed to limitations and restrictions on outpatient services.

Third, the implementation of utilization management at RACH has played a vital role in providing cost-effective and high quality health care. The goal of a MCO is to provide the right care at the right time utilizing effective UM principles. According to Hartwell and Hamilton (1995), "UM is a process that measures use of available resources (including professional staff, facilities, and services) to determine medical necessity, cost-effectiveness, and conformity to criteria for optimal use" (p. 74). UM performs its functions through utilization review, case management and proper discharge planning. Through these processes, RACH has been able to reduce inpatient and outpatient utilization and costs.

Fourth, technological advances have decreased inpatient bed days by providing surgical procedures and services in an outpatient setting. For example, gall bladder surgeries which required a seven-day inpatient stay is now conducted on an ambulatory basis (Feldstein, 1994).

Finally, the mission of RACH's Silver Care Program was to assist the over 65 dual-eligible beneficiaries transition from the MHS to the civilian health care system. Consequently, many beneficiaries transitioned to the civilian health care system by enrolling in Medicare. The shift in health care delivery has resulted in a downward trend in inpatient bed days and outpatient visits due to the decline in health care services delivered to the dual-eligible population at RACH.

The trends of health care utilization by the Silver Care population likewise showed a downward trend over the 20-month of historical data collection. The trend posed several questions concerning the health status of the Silver Care and non-Silver Care beneficiaries and the quality of care provided to these populations. First, did managing the health care of a population, such as the Silver Care enrollees, improve health status? Second, was this dual-eligible population seeking health care elsewhere due to a decline in satisfaction with services provided at RACH or restrictions in access?

The survey instrument employed by the researcher was aimed at measuring self-perceived health status and patient satisfaction levels of the dual-eligible population. A random sample of 445 beneficiaries was selected. Seventy-six percent of the random sample was successfully contacted. Of the 339 beneficiaries contacted, only 234 were willing to participate in the survey. The reasons for non-participation included seeking health care through civilian providers, distrust with answering personal questions over the telephone, refusal to participate in telephonic surveys, dementia, and language barriers. The most popular reason for not participating in the survey was that beneficiaries were receiving health care outside of RACH. Many who refused to participate exhibited bitterness towards RACH, the DoD and Congress for going back on their promise of life long health care. In addition, the researcher identified 27 non-participants as Silver Care enrollees who no longer sought care from RACH. Many stated that they could no longer get

appointments and that physicians at RACH had advised them to seek care from civilian providers.

The first part of the survey verified demographic data such as age, gender, and beneficiary status. The researcher found several discrepancies in the data obtained from DEERS and CHCS. However, the discrepancies were not in the demographic data but in phone numbers, that were either incorrect or disconnected, or beneficiaries who were deceased. These discrepancies can only be corrected through direct contact with the beneficiary or a family member. Currently, the only methods for removing deceased beneficiaries from DEERS is if the beneficiary dies at a DoD MTF or if the family informs the identification card section at a military installation.

There was a concern on the part of the researcher and the RACH staff as to the actual number of over 65 users. Consequently, the researcher added two questions to the survey instrument to determine utilization of Medicare benefits and health care obtained through civilian health care providers. The survey results revealed that 21% of the sampled Silver Care enrollees were utilizing their Medicare benefits to receive care from a civilian PCM. Moreover, 69% of this same population were utilizing specialty care providers. On the other hand, 72% of the non-Silver Care beneficiaries received their primary care from a civilian PCM and 77% received care from civilian specialty care providers. The large number of beneficiaries who reported that they no longer utilized RACH indicated a smaller user dual-eligible population than was initially implied. However, this same population indicated to the researcher that they still use the pharmacy at RACH. Furthermore, most of the beneficiary indicated that they planned on trying to enroll in the DoD's Medicare Demonstration Project known as TRICARE Senior Prime.

The purpose of conducting the survey on the dual-eligible population was to measure health status and patient satisfaction. The secondary purpose was to identify significant differences in health status and patient satisfaction between the two groups. The researcher did

find that the most popular reason for participating in the survey was utilization. In reviewing the descriptive statistics of the demographic, utilization and cost data obtained on the sampled population, the most notable difference found was the inpatient and outpatient utilization. The Silver Care enrollees averaged 24.84 outpatient visits per beneficiary; whereas, the non-Silver Care beneficiary averaged 15.63 visits. Inpatient bed days also showed a difference between the two groups. The mean for the Silver Care beneficiaries was 1.09 bed days as opposed to the non-Silver Care who averaged .36 bed days per beneficiary. Some of the possible reasons for the differences in utilization that come to mind are health status and patient satisfaction.

Health status and patient satisfaction were measured in the second part of the survey instrument. In reviewing the results of the health status item it was noted that the mean score for the Silver Care beneficiaries was 3.04 or a health status of "good". While, the non-Silver Care beneficiaries had a mean score of 2.80, which equated to very strong "fair". The One-Way ANOVA revealed that there was no statistical difference in health status between the two groups. The result of the One-Way ANOVA answered some of the issues identified by the researcher as to the health status of each group. For example, did RACH enroll a healthy population in their Silver Care program? The results of the test indicated that RACH's Silver Care enrollees were slightly healthier based on a comparison of the mean scores; however, the difference between the groups was not statistically significant at the $p < .05$ level. Furthermore, the findings were unable to identify whether Silver Care enrollment had significantly improved the health status of the enrolled population because the researcher did not know the health status of the Silver Care enrollee at the beginning of the Silver Care project. Therefore, one must accept the null hypothesis that there is no difference in health status among the two dual-eligible populations based on Silver Care enrollment.

The patient satisfaction items provided the most significant findings of the survey. The purpose for conducting the patient satisfaction survey was to identify significant differences between the two populations based on the care received at RACH. The patient satisfaction portion of the survey was broken down into six global constructs: access, availability, continuity of care, financial, general satisfaction, and physician conduct. The results revealed that there was a statistical difference in every global construct and overall patient satisfaction between the Silver Care and non-Silver Care beneficiaries. The most significant finding being the difference in overall patient satisfaction between the groups. The Silver Care enrollees' overall patient satisfaction score was 4.41; whereas, the non-Silver Care beneficiaries' score was 3.24. The Silver Care enrollees were very satisfied with the care they received at RACH as opposed to the non-Silver Care beneficiaries who had neutral feelings about their care.

Access, availability and continuity of care provided the major differences between the two groups. In the case of all three constructs, the non-Silver beneficiaries were neutral; whereas, the Silver Care enrollees were very satisfied. The significant differences in access were attributed to a beneficiary's ability to get appointments for themselves and their family members. A few Silver Care beneficiaries reported that they had difficulty getting appointments, yet a majority indicated that they were able to get a same day appointment for urgent care and an appointment within a week for routine care. On the other hand, a large percentage of non-Silver Care beneficiaries indicated that they had a difficult time getting space available care. Most beneficiaries surveyed reported that RACH was conveniently located to provide their medical needs. Many indicated that they had retired in the local area for this reason.

The availability of care also produced a significant finding in the survey. The significant differences were attributed to the availability of appointments and services at RACH. A primary

concern for both groups was the limited specialty services that are available at RACH. RACH does not offer many specialty services such as cardiology and thoracic surgery. Therefore, the dual-eligible beneficiaries must seek local specialty care or rely on space available care at BAMC. Moreover, Silver Care beneficiaries indicated that the staff at RACH made every effort to get them an appointment at BAMC.

Another construct that revealed significant differences between the groups, was continuity of care. The continuity of care survey item dealt with seeing the same physician at every appointment. This construct provided the lowest score among the six constructs for the non-Silver Care beneficiaries. The score was borderline between neutral and dissatisfied. The reason for the lower scores for this group was due to their reliance on space available appointments with any provider. On the other hand, Silver Care enrollees are assigned to a PCM and usually see the same physician every time unless the provider is transferred from the MTF or on leave.

The financial and general satisfaction constructs also showed statistical differences between the two groups. The average construct scores for the non-Silver Care beneficiaries placed them in the satisfied category, versus very satisfied among the Silver Care enrollees. A majority of the beneficiaries surveyed reported that they were much happier with the services provided at RACH as opposed to those received from civilian providers. The main reason for the consensus is the high cost associated with utilizing Medicare that requires deductibles and copayments.

The one global construct that showed little difference between the groups was physician conduct. Despite statistical significance in differences between the groups, the average global score categorized both groups as being very satisfied with physician conduct at RACH. The beneficiaries surveyed spoke highly about the providers at RACH. Beneficiaries reported the

provider staff was open, honest, respectable, sensitive and eager to provide care.

The patient satisfaction survey determined that one would reject the null hypothesis and accept the alternate hypothesis that there is a difference in patient satisfaction levels among the two dual-eligible populations based on Silver Care enrollment. Overall, the survey instrument provided some interesting and statistically significant findings between the two groups. Perhaps the most significant were the answers provided to a majority of the issues and assumptions that were identified in the course of conducting this research project. The survey instrument addressed many issues relating to health status. Outpatient visits were significantly higher for Silver Care beneficiaries because of their greater access to appointments. Moreover, it was discovered that a percentage of Silver Care enrollees are utilizing both RACH and their Medicare benefits to receive primary care.

The final portion of the data analysis that included the demographic data and survey results identified predictor variables for health care utilization. The researcher employed a backward linear regression method to identify the predictor variables for the dependent variables, inpatient bed days and outpatient visits. The independent variables for both models were age, beneficiary status, enrollment, gender, health status and patient satisfaction.

The first linear regression model was that inpatient bed days was a function of age, beneficiary status, enrollment, gender, health status and patient satisfaction. The variables of age, beneficiary status, enrollment and gender were removed from the model applying the backward elimination method of linear regression. There was no difference in the number of inpatient bed days for these variables. The researcher believed that enrollment would be a predictor for inpatient bed days; however, the variable proved not to be statistically significant in the final regression model. This finding can be explained through a sharing of the variance between two

variables, one being a predictor variable. In the case of this particular linear regression model, it is believed that the two variables were patient satisfaction and enrollment (K. Finstuen, personal communication, April 16, 1998). In order to test this theory, the researcher tested the linear regression model excluding the patient satisfaction predictor variable. The results of the test proved that by omitting the patient satisfaction variable, enrollment and health status became the predictor variables. The tested model had an $R^2 = .50$, a Multiple R of .223, with a statistically significant at $F(2, 231) = 6.057, p = .003$. The results corroborated the theory that a shared variance existed between the two variables, enrollment and patient satisfaction. However, the shared variance was considerably lower and was not as statistically significant as the health status and patient satisfaction variables.

The two predictor variables that were included in the linear regression model were health status and patient satisfaction. Health status had an inverse relationship with the dependent variable. This suggests that as the dependent variable decreases the independent variable increases. In the situation of health status, those who reported a higher level of health were assigned a higher number. For example, those who reported their health as excellent were given a score of five; whereas, those individuals who reported poor health were given a one. Therefore, an individual in poor health will generally have a higher number of inpatient bed days. However, patient satisfaction levels had the opposite effect on the dependent variable. As patient satisfaction levels rose, the dependent variable likewise increased. Simply put, beneficiaries who utilized RACH for inpatient services were very satisfied with the care provided by the facility. The final linear regression model is depicted in Table 17. Inserting the sampled population's means and standard deviations for the independent variables, health status and patient satisfaction, one can solve the linear regression model. The actual population mean for inpatient bed days is

.89 bed days while the solved regression equation yields .88 days. This finding demonstrates the validity of the least squares linear regression model. Therefore, based on the statistical findings, one would partially reject the null hypothesis and accept the variables of health status and patient satisfaction as predictors of inpatient bed days.

The second linear regression model was that outpatient bed days was a function of age, beneficiary status, enrollment, gender, health status and patient satisfaction. The beneficiary status, enrollment and gender variables were removed from this model by applying the backward elimination method of linear regression. The researcher once again believed that enrollment would be a predictor of outpatient visits. However, this variable proved not to be statistically significant in the final regression model. Again, this variable had a shared variance with the predictor variable, patient satisfaction. The theory was tested by excluding patient satisfaction as a predictor of outpatient visits. The linear regression model that was tested revealed an $R^2 = .115$, a Multiple R of .339, with a statistically significant $F(3, 230) = 9.950$, $p = .000$. The results of the test implied that by omitting the patient satisfaction variable; age, enrollment and health status became the predictor variables. However, the linear regression model had a lower R^2 and significantly lower F result.

The three predictor variables that were applied in the linear regression model were age, health status and patient satisfaction. Age and health status had an inverse relationship with the dependent variable. This indicated that as the dependent variable decreases the independent variable increases. Age having an inverse effect on the dependent variable, outpatient visits perplexed the researcher. However, after reviewing the utilization data it was evident that beneficiaries who were closer to 65 produced more outpatient visits due to their functional abilities. As beneficiaries got older their motor functions and abilities to operate vehicles limit

their choices of health care. It was discovered that a number of beneficiaries were residing in retirement homes or were receiving care from home health agencies, resulting in a decline in outpatient visits.

The relationship between health status and inpatient bed days produced similar results with the dependent variable, outpatient visits. Consequently, those in poor health had more outpatient visits. Patient satisfaction levels had the opposite effect on the dependent variable. As patient satisfaction levels increased, the dependent variable also rose. The explanation for this effect was quite simple. Beneficiaries who utilized RACH for outpatient services were more satisfied than those who did not. The final linear regression model is depicted in Table 21. Inserting the sampled population's means and standard deviations for the independent variables of age, health status and patient satisfaction, one can solve the linear regression model. The actual population mean for outpatient visits is 22.32 outpatient visits while the solved regression equation yielded 22.24 outpatient visits. This finding demonstrated the validity of the least squares linear regression model. Therefore, the null hypothesis is only partially rejected and the alternate hypothesis is accepted that there is a difference in outpatient visits based on age, health status and patient satisfaction.

Weaknesses of the Study

In the course of conducting this research study, the researcher identified several weaknesses. First, the study did not capture all the utilization and costs associated with providing care to this dual-eligible population. The care received from DoD MEDCENs was not incorporated into the study because the researcher did not review the medical records of the 2,216 dual-eligible beneficiaries to determine referral costs of outside MTFs. The researcher found that RACH provided a large percentage of care to this dual-eligible population; however, there were

limitations on the care that RACH could provide. RACH provided the full realm of primary care services to this dual-eligible population; however, the organization provided limited specialty care. The specialty care provided at RACH included orthopedics, dermatology, podiatry, ophthalmology, and limited neurological services. Despite providing orthopedic services, surgical procedures such as hip and knee replacements were not performed although in high demand by this dual-eligible population. Consequently, these services were obtained locally at civilian health care organizations or at BAMC on a space available basis. In addition, this population requires extensive cardiology and cardiac/thoracic surgical services. In the course of conducting the sample survey, the researcher identified numerous dual-eligible beneficiaries who had received cardiac/thoracic surgery services at BAMC and local civilian health care organizations. The utilization and costs for providing these services were not captured primarily because of restrictions in obtaining such information. Medicare billing records are not open to the public under the *Freedom of Information Act* (FOIA). Therefore, the researcher was unable to obtain any cost data from HCFA.

Second, in the course of conducting the health status and patient satisfaction survey the researcher discovered that the actual dual-eligible user population at RACH was much smaller than was indicated by the data. Over the course of 20 months, a percentage of this population has abandoned their use of the MHS and is now receiving some if not all of their health care from civilian physicians. Surprisingly, a number of Silver Care enrollees have followed suit and are no longer using RACH. For example, in the course of conducting the survey, the researcher identified 27 Silver Care enrollees who no longer utilized RACH for their primary or specialty care needs. These individuals informed the researcher that RACH physicians and staff members had informed them to seek care through civilian providers. This would indicate that the

population in the Silver Care Program is much smaller than first anticipated. A decrease in the actual user population results in an increase of utilization and costs per beneficiary. In addition, the researcher found that the non-Silver Care population was also smaller than originally projected. In fact, a larger percentage of non-Silver Care beneficiaries indicated that they no longer utilized RACH for any of their health care needs.

The third weakness of the study was the time period employed for the historical data collection. The researcher selected a 20 month period, April 1996 through December 1997, which represented the implementation of the Silver Care Program. The 20 month period provided the researcher with sufficient data to track health care utilization and cost trends; however, it also had a few negative effects on the study. Perhaps the most notable was the discovery that the actual user population size was smaller than originally projected. A shorter researcher period would have allowed the researcher to capture a higher user population.

Conclusion and Recommendations

Conclusions

This study had two primary objectives. First, to conduct an analysis on the utilization and cost of health care associated with providing care to the dual-eligible population. Second, to measure health status and patient satisfaction levels of the same population. The first analysis consisted of a retrospective study of the health care costs and utilization data for the over 65 dual-eligible population over a 20 month period. The second analysis consisted of a combination of historical data on health care utilization and the employment of a telephonic survey instrument on 20% of the dual-eligible population. The purpose of this extensive data collection and analysis was to determine whether RACH's Silver Care Program was a viable alternative to space available care from the perspective of cost and benefit to the dual-eligible beneficiary.

The historical data collection revealed that RACH provided \$6,686,662.92 in health care to the over 65 population from April 1996 through December 1997. The average monthly cost for the entire population, taking into account the living and deceased population, was \$334,333.15 with a per beneficiary cost of \$146.51. In reviewing the data of the Silver Care enrollees, the total cost of health care was \$4,260,733.27 for the 20-month period. The average monthly cost of health care for the Silver Care beneficiary was \$213,036.66 with a per beneficiary cost of \$159.10. Again, these costs do not include the health care that was provided at DoD MEDCENs, civilian health care organization, home health agency, and skilled nursing facilities. In addition, the pharmaceutical costs for this population was not included in the analysis. With a PMPM reimbursement of \$333.72 by HCFA to a civilian HMO, the researcher believes that the Silver Care Program is a viable alternative to space available care (<http://www.hcfa.gov/stats/hmorates/aapccflt.htm>, 1998). The management of the population's health care needs could be controlled through proper utilization and disease management. This was evident in the data analysis between the two populations taking into account living and deceased beneficiaries. Although smaller in population, non-Silver Care beneficiaries yielded a higher inpatient cost per beneficiary than the Silver Care enrollees.

The data obtained from the survey instrument also implied that the Silver Care Program was a viable alternative to space available care based on the results of the health status and patient satisfaction survey. The survey revealed no difference in health status between the two groups; however, patient satisfaction levels exhibited statistical differences in the levels of satisfaction between the two groups. There were statistical differences in every global construct with the most notable being access, availability and continuity of care. Overall, the Silver Care enrollees were much more satisfied with the health care provided at RACH.

Furthermore, the survey results enabled the researcher to develop a linear regression model that the staff at RACH could use to predict inpatient and outpatient health care utilization. The predictor variables for inpatient bed days were health status and patient satisfaction. The same variables plus age can be used to predict outpatient visits. Therefore, based on the results from the data analysis used to determine utilization and costs and the survey instrument, it is clear that RACH's Silver Care Program is a viable alternative to space available care for the dual-eligible population. Moreover, the data analysis and the results of the survey instrument will provide the staff at RACH with valuable information for implementing the TRICARE Senior Program during FY 98.

Recommendations

The template utilized in this research study provides a base for future studies that can be conducted on any population to include the over 65 dual-eligible. The personnel at RACH can use this data analysis as a foundation and planning tool for determining the utilization and costs associated with providing care to the dual-eligible population, in particular those beneficiaries who will enroll in the TRICARE Senior Program. However, future studies must include the full realm of health care to include pharmaceutical, civilian provider, home health care and skilled nursing facility costs in order to determine the total cost of health care. Predicting and planning for these costs will be vital to the success of the TRICARE Senior Program at RACH. RACH has proven that it can provide cost-effective care to a selected group of dual-eligible beneficiaries through the Silver Care Program. Due to the results obtained from the patient satisfaction survey, the model employed for the development of the Silver Care Program should be used in the implementation of the TRICARE Senior Program. Furthermore, the success of the TRICARE Senior Program at RACH is dependent upon controlling cost, improving quality, and maintaining

access to health care. Its success could reestablish the implied commitment to provide life long health care to its over 65 population.

Appendix A

MEPRS Costs For Inpatient Bed Days^a and Outpatient Visits^b

	April 96 - March 97	April 97 - December 97
Inpatient Specialties		
Internal Medicine	\$1,334.44	\$1,464.48
General Surgery	\$1,147.60	\$1,145.50
Ophthalmology	\$633.89	\$659.22
Ear, Nose & Throat	\$1,319.87	\$1,171.26
Urology	\$896.24	\$866.88
Gynecology	\$1,376.38	\$1,481.94
Orthopedics	\$988.18	\$988.25
Podiatry	\$932.69	\$930.85
Family Practice Medicine	\$739.26	\$784.35
Family Practice Orthopedics	\$520.69	\$553.31
Outpatient Clinics		
Internal Medicine	\$101.07	\$123.94
Allergy	\$83.67	\$19.72
Neurology	\$115.40	\$165.64
Nutrition	\$9.86	\$26.47
Dermatology	\$67.21	\$87.66
General Surgery	\$115.73	\$154.48
Ophthalmology	\$107.12	\$146.13
Ear, Nose & Throat	\$132.34	\$175.24
Urology	\$114.69	\$152.74
Gynecology	\$129.15	\$176.54
Orthopedics	\$65.21	\$98.63
Podiatry	\$58.11	\$78.64
Chiropractic	\$56.68	\$77.22
Family Practice	\$99.55	\$124.76
Nursing Care	\$11.02	\$14.88
Primary/Minor Care	\$54.70	\$56.02
Optometry	\$38.10	\$53.13
Audiology/HCON	\$93.07	\$125.60
Emergency Room	\$161.47	\$213.89
Physical Therapy	\$24.32	\$30.14
Occupational Therapy	\$31.56	\$42.80

^aBed Days were based on a 24 hour inpatient stay within the facility.

^bOutpatient Visits entailed face-to-face solo contact with a family practitioner, general internists, specialty physician, physician assistant, nurse practitioner, medical specialists or others.

Appendix B

**REYNOLDS ARMY COMMUNITY HOSPITAL
DUAL-ELIGIBLE POPULATION SURVEY
HEALTH STATUS AND PATIENT SATISFACTION QUESTIONNAIRE**

Date: _____**Demographic Data****Age:** _____**Gender:** _____ **Male** _____ **Female****Beneficiary Status:**_____ **Military retiree age 65 or older**_____ **Family member of a retiree age 65 or older****Are you enrolled in Reynolds Army Community Hospital's Silver Care Program?** _____ **Yes** _____ **No****I utilize my Medicare Coverage to see a civilian primary care provider?** _____ **Yes** _____ **No****I utilize my Medicare Coverage for specialty health care only?** _____ **Yes** _____ **No**

Health Status**1. In general, would you say your health is:**

_____ Excellent	(5)
_____ Very Good	(4)
_____ Good	(3)
_____ Fair	(2)
_____ Poor	(1)

Patient Satisfaction

Please circle the appropriate number based on the scale annotated above each section of questions

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
General Satisfaction					
1. I am very satisfied with the medical care I receive.	1	2	3	4	5
2. The care I have received from doctors in the last few years is just about perfect.	1	2	3	4	5
Access					
3. Reynolds is conveniently located to satisfy my medical needs.	1	2	3	4	5
4. Reynolds provides care to everyone in my family when they need it.	1	2	3	4	5
Availability					
5. I am satisfied with the hours that they make available to me for my appointments.	1	2	3	4	5
6. Reynolds provides enough services to fit my needs.	1	2	3	4	5
Financial					
7. I am happier with the medical services provided at Reynolds versus those I receive utilizing my Medicare or other insurance.	1	2	3	4	5
Validity Test					
8. Doctors hurt many more people than they help.	1	2	3	4	5
Continuity of Care					
9. I see the same doctor just about every time I seek medical care at Reynolds.	1	2	3	4	5

Physician Conduct

10. Doctors always tell me what to expect during my treatment
11. Doctors always treat me with respect.
12. I am encouraged to get a yearly exam when I seek medical care.
13. Doctors always do their best to keep me from worrying.
14. Doctors always explain the side effects of the medicine they prescribe for me.
15. Doctors are very thorough when examining me.
16. Doctors respect my feelings as a patient.
17. When I seek care for a new problem, they always check up on the problems I've had before.

[illegible]

Physician Conduct

27. Doctors hardly ever explain my medical problems to me.

28. Doctors are not as thorough as they should be with me.

29. Doctors do not care if they make me worry.

30. The medical problems I have had in the past are ignored when I seek care for a new medical problem.

31. Doctors cause me to worry because they do not fully explain my medical conditions to me.

32. I usually experience a long waiting time before being seen by my doctor.

Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5
1	2	3	4	5

What suggestions can you provide to improve our services?

a. Patient Educational Materials (Please be specific on what topic[s]):

b. Patient Education Classes (Please be specific on what topic[s]):

c. Other (Please be specific):

d. Additional Comments:

THANK YOU FOR TAKING YOUR VALUABLE TIME TO COMPLETE THIS SURVEY!

Appendix C

Survey Script

Hello Mr./Mrs. _____

My name is CPT Cardenas and I am the administrative resident at Reynolds Army Community Hospital. I am currently completing the second year of my masters program in healthcare administration from the U.S. Army-Baylor Program. In order to complete my graduate program I am required to complete a graduate management project. My research project involves a study on the over 65 population utilizing Reynolds Army Community Hospital for both inpatient and outpatient health care. In order to complete my project, I am conducting a survey which will be used to measure your general health status and patient satisfaction. Your participation in this study is purely voluntary and your responses will be kept confidential. You will not be identified by name because I am going to recode your name with a number upon completion of the survey.

Do you have any questions at this time?

Are you willing to participate in this survey?

First of all, I need to collect some personal information. If you have any questions or do not understand the questions please feel free to stop me at any time during the survey and ask me to clarify the question.

1. What is your current age?
2. Your gender?
3. What is your beneficiary status? Retired military or are you a dependent?
4. Are you presently enrolled in Reynolds Army Community Hospital's Silver Care Program?
5. Do you utilize your Medicare Insurance to receive care from a civilian primary care provider?
6. Do you utilize your Medicare Insurance only for specialty care outside of Reynolds Army Community Hospital?

The next portion of the survey consists of one question which will measure your perception of your current health status? Would say that your current health status is:

1. Excellent
2. Very Good
3. Good
4. Fair
5. Poor

The final portion of this survey will be utilized to measure your satisfaction with Reynolds Army Community Hospital? This portion will consist of two sets of questions. The first portion will consist of questions in which I will ask you to respond to the statement by indicating that you strongly agree, agree, not sure, disagree or strongly disagree. There are 32 questions and if at any time you do not understand the question please feel free to ask me for clarification.

I will now ask questions 1-32 of the patient satisfaction portion of the survey (Refer to Appendix B for Patient Satisfaction items).

The second portion of the patient satisfaction survey consists of question which are aimed at collecting information on Reynolds' services and what you think we could do to improve those services. There are four questions.

1. What do you suggest Reynolds should do to improve patient educational materials?
2. What do you suggest Reynolds should do to improve patient education classes?
3. Other services at Reynolds?
4. Do you have any additional comments at this time?

Mr./Mrs. _____ I really appreciate your time in answering these questions.
I thank you for your time and again all your comments and responses to this survey will remain confidential.

Appendix D

Inpatient Bed Days - Dual Eligible Population (Living)

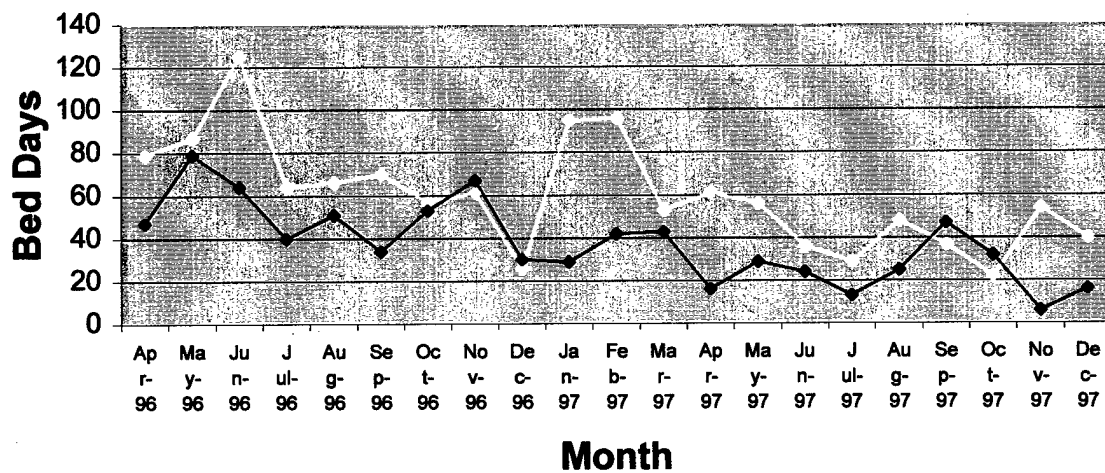
		Silver Care		Space Available	
Bed Days By Month			3 Month Trend		3 Month Trend
	Apr-96	79		47	
	May-96	87		79	
	Jun-96	125	97	64	63.3333
	Jul-96	64		40	
	Aug-96	66		51	
	Sep-96	70	66.667	34	41.6667
	Oct-96	57		53	
	Nov-96	61		67	
	Dec-96	26	48	30	50
	Jan-97	95		29	
	Feb-97	96		42	
	Mar-97	53	81.333	43	38
	Apr-97	61		16	
	May-97	56		29	
	Jun-97	36	60.667	24	23
	Jul-97	29		13	
	Aug-97	48		25	
	Sep-97	37	38	47	28.3333
	Oct-97	22		32	
	Nov-97	54		6	
	Dec-97	40	38.667	16	18
Total Bed Days		1,262		787	
2,049					

Figure D1

Silver Care

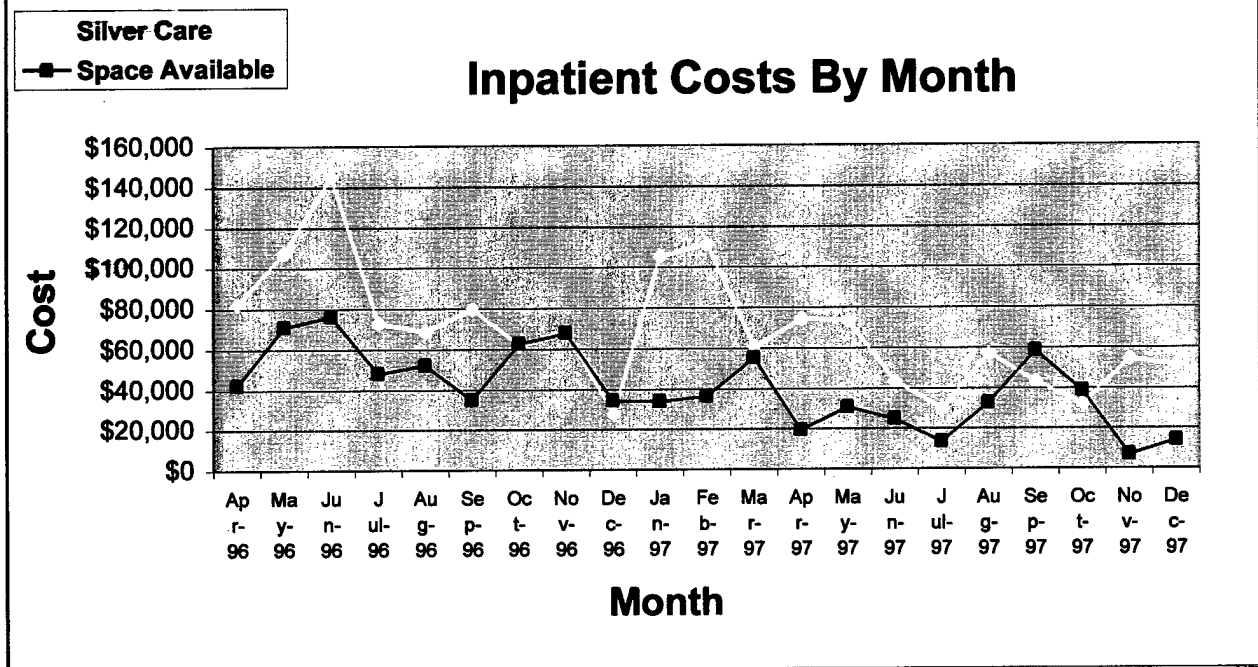
→ Space Available

Bed Days By Month



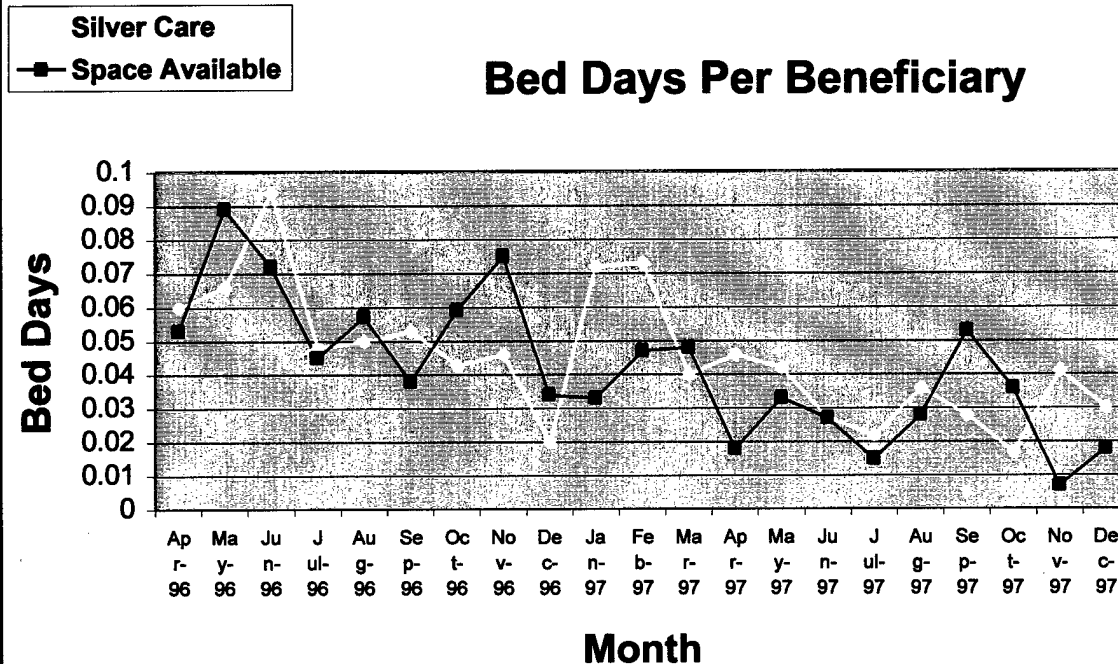
Appendix E					
Inpatient Costs - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
Inpatient Cost By Month			3 Month Trend		3 Month Trend
	Apr-96	\$82,141.33		\$41,985.50	
	May-96	\$107,587.88		\$70,834.21	
	Jun-96	\$144,956.83	\$111,562.01	\$76,260.21	\$63,026.64
	Jul-96	\$72,864.35		\$47,935.70	
	Aug-96	\$68,603.10		\$52,150.65	
	Sep-96	\$79,742.86	\$73,736.77	\$34,740.31	\$44,942.22
	Oct-96	\$61,674.76		\$62,462.12	
	Nov-96	\$69,159.23		\$67,675.25	
	Dec-96	\$27,766.71	\$52,866.90	\$34,081.40	\$54,739.59
	Jan-97	\$105,541.48		\$33,729.69	
	Feb-97	\$111,437.90		\$36,345.82	
	Mar-97	\$60,644.33	\$92,541.24	\$55,282.92	\$41,786.14
	Apr-97	\$74,300.38		\$19,433.28	
	May-97	\$73,336.48		\$30,802.93	
	Jun-97	\$43,304.19	\$63,647.02	\$24,808.71	\$25,014.97
	Jul-97	\$30,035.11		\$13,633.50	
	Aug-97	\$57,090.89		\$32,504.96	
	Sep-97	\$43,170.84	\$43,432.28	\$58,433.58	\$34,857.35
	Oct-97	\$32,270.94		\$38,517.85	
	Nov-97	\$54,283.10		\$6,873.00	
	Dec-97	\$51,406.40	\$45,986.81	\$13,976.90	\$19,789.25
Total Inpatient Costs		\$1,451,319.09		\$852,468.49	
\$2,303,787.58					

Figure E1



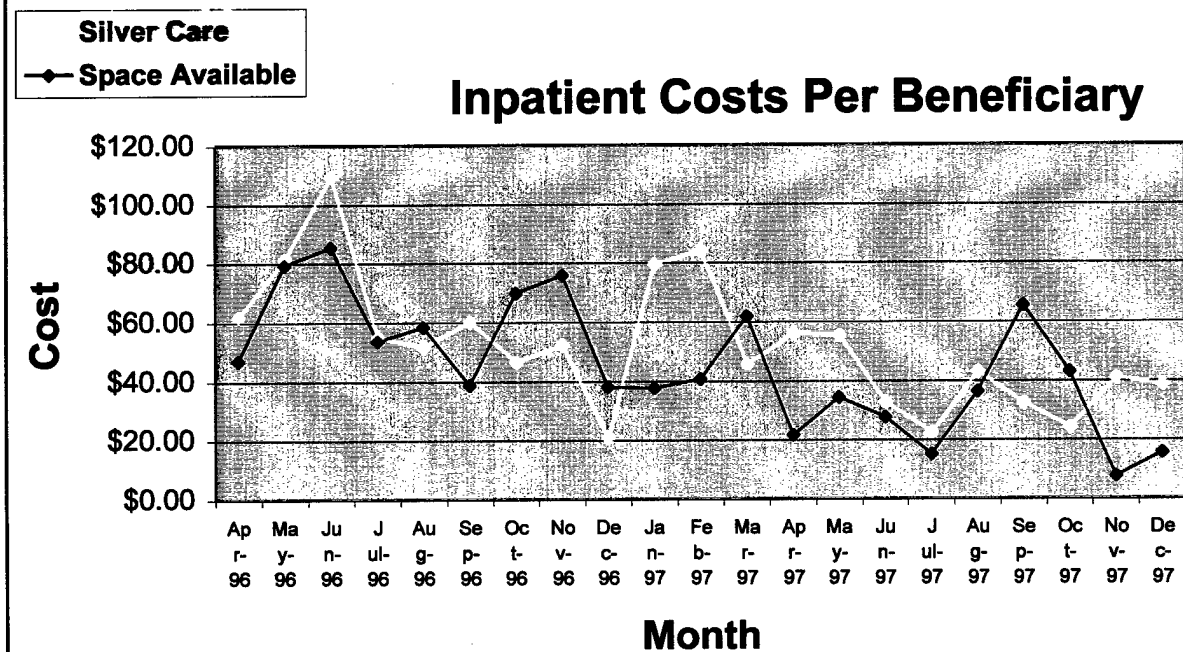
Appendix F					
Bed Days Per Beneficiary - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Bed Days Per Beneficiary By Month			Trend		Trend
	Apr-96	0.06		0.053	
	May-96	0.066		0.089	
	Jun-96	0.094	0.073	0.072	0.071333
	Jul-96	0.048		0.045	
	Aug-96	0.05		0.057	
	Sep-96	0.053	0.050	0.038	0.046667
	Oct-96	0.043		0.059	
	Nov-96	0.046		0.075	
	Dec-96	0.02	0.036	0.034	0.056
	Jan-97	0.072		0.033	
	Feb-97	0.073		0.047	
	Mar-97	0.04	0.062	0.048	0.043
	Apr-97	0.046		0.018	
	May-97	0.042		0.033	
	Jun-97	0.027	0.038333	0.027	0.026
	Jul-97	0.022		0.015	
	Aug-97	0.036		0.028	
	Sep-97	0.028	0.029	0.053	0.032
	Oct-97	0.017		0.036	
	Nov-97	0.041		0.007	
	Dec-97	0.03	0.029	0.018	0.020
Bed Days Per Beneficiary		0.953		0.882	
0.925					

Figure F1



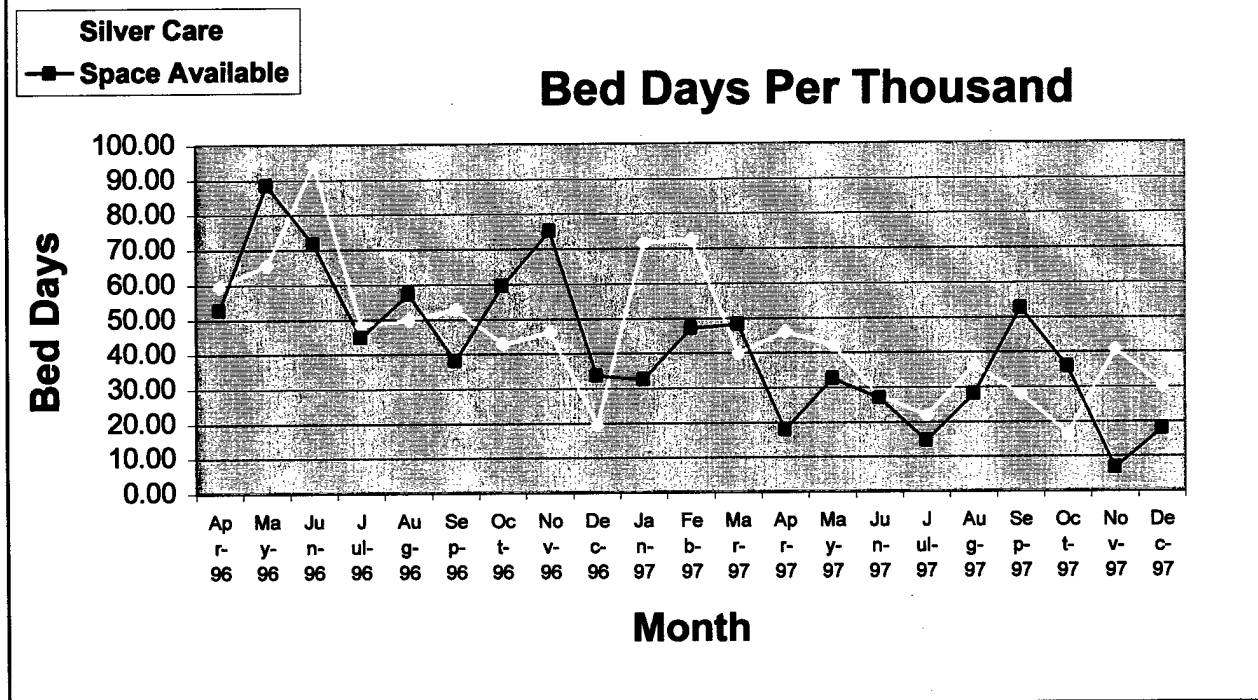
Appendix G					
Inpatient Costs Per Beneficiary - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Inpatient Cost Per Beneficiary			Trend		Trend
	Apr-96	\$62.04		\$47.07	
	May-96	\$81.26		\$79.41	
	Jun-96	\$109.48	\$84.26	\$85.49	\$70.66
	Jul-96	\$55.03		\$53.74	
	Aug-96	\$51.82		\$58.47	
	Sep-96	\$60.23	\$55.69	\$38.95	\$50.38
	Oct-96	\$46.58		\$70.03	
	Nov-96	\$52.24		\$75.87	
	Dec-96	\$20.97	\$39.93	\$38.21	\$61.37
	Jan-97	\$79.71		\$37.81	
	Feb-97	\$84.17		\$40.75	
	Mar-97	\$45.80	\$69.90	\$61.98	\$46.85
	Apr-97	\$56.12		\$21.79	
	May-97	\$55.39		\$34.53	
	Jun-97	\$32.71	\$48.07	\$27.81	\$28.04
	Jul-97	\$22.69		\$15.28	
	Aug-97	\$43.12		\$36.44	
	Sep-97	\$32.61	\$32.80	\$65.51	\$39.08
	Oct-97	\$24.37		\$43.18	
	Nov-97	\$41.00		\$7.71	
	Dec-97	\$38.83	\$34.73	\$15.67	\$22.19
Total Cost Per Beneficiary		\$1,092.13		\$955.68	
\$1,037.21					

Figure G1



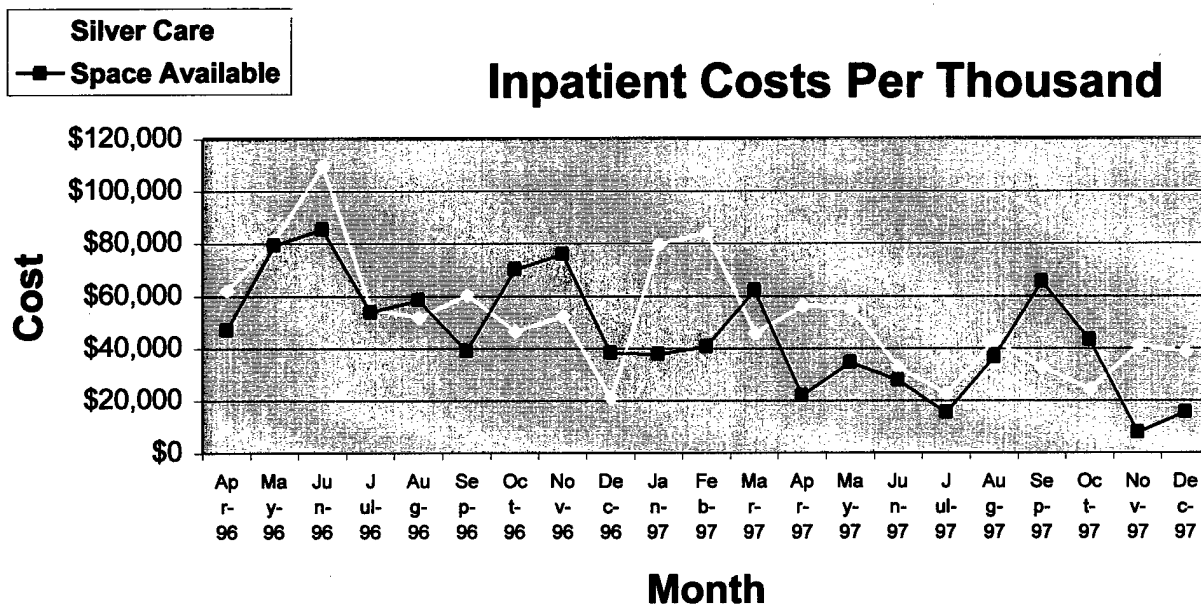
Appendix H					
Bed Days Per Thousand - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Bed Days Per 1000 By Month			Trend		Trend
	Apr-96	59.67		52.69	
	May-96	65.71		88.57	
	Jun-96	94.41	73.26	71.75	71.00
	Jul-96	48.34		44.84	
	Aug-96	49.85		57.18	
	Sep-96	52.87	50.35	38.12	46.71
	Oct-96	43.05		59.42	
	Nov-96	46.07		75.11	
	Dec-96	19.64	36.25	33.63	56.05
	Jan-97	71.75		32.51	
	Feb-97	72.51		47.09	
	Mar-97	40.03	61.43	48.21	42.60
	Apr-97	46.07		17.94	
	May-97	42.30		32.51	
	Jun-97	27.19	38.52	26.91	25.78
	Jul-97	21.90		14.57	
	Aug-97	36.25		28.03	
	Sep-97	27.95	28.70	52.69	31.76
	Oct-97	16.62		35.87	
	Nov-97	40.79		6.73	
	Dec-97	30.21	29.21	17.94	20.18
Total Bed Days Per 1000		953.17		882.29	
924.64					

Figure H1

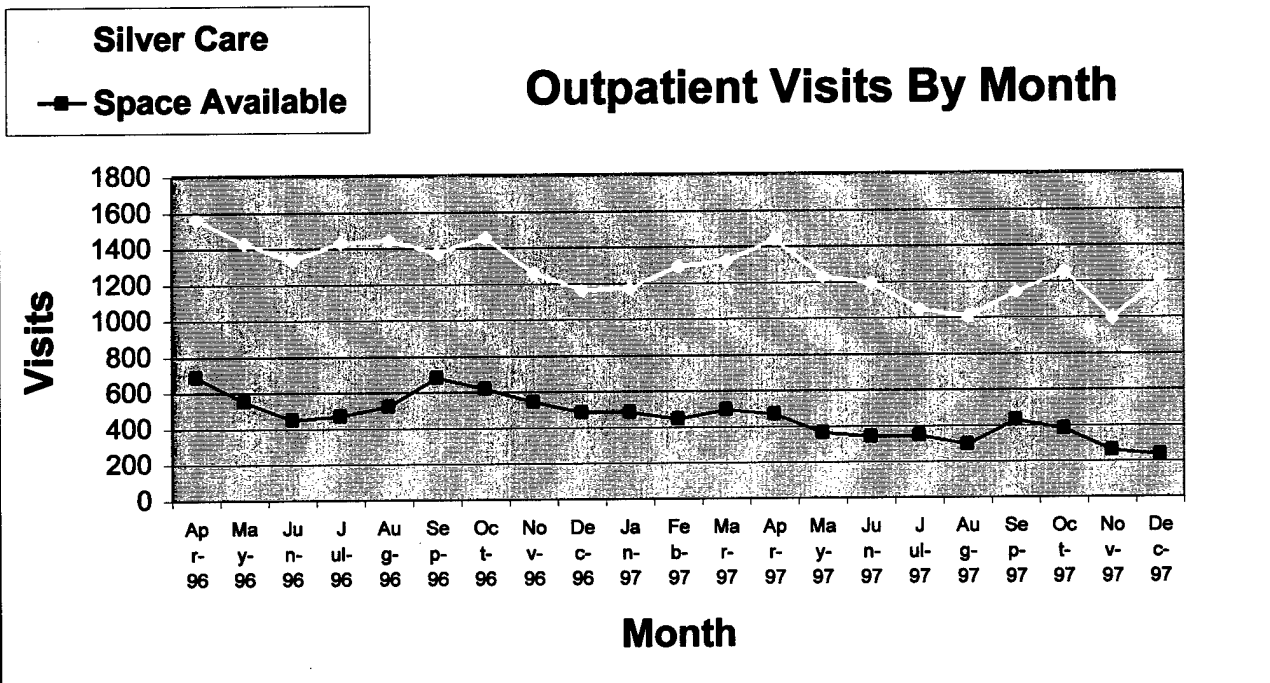


Appendix I					
Inpatient Costs Per Thousand - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Inpatient Costs Per 1000 By Month			Trend		Trend
	Apr-96	\$62,040.28		\$47,068.95	
	May-96	\$81,259.73		\$79,410.55	
	Jun-96	\$109,484.01	\$84,261.34	\$85,493.51	\$70,657.67
	Jul-96	\$55,033.50		\$53,739.57	
	Aug-96	\$51,815.03		\$58,464.85	
	Sep-96	\$60,288.75	\$55,712.43	\$38,945.54	\$50,383.32
	Oct-96	\$46,582.15		\$70,024.80	
	Nov-96	\$52,235.07		\$75,869.11	
	Dec-96	\$20,971.84	\$39,929.69	\$38,207.85	\$61,367.25
	Jan-97	\$79,714.11		\$37,813.55	
	Feb-97	\$84,167.60		\$40,746.44	
	Mar-97	\$45,803.87	\$69,895.19	\$61,976.37	\$46,845.45
	Apr-97	\$56,118.11		\$21,786.19	
	May-97	\$55,390.09		\$34,532.43	
	Jun-97	\$32,707.09	\$48,071.76	\$27,812.46	\$28,043.69
	Jul-97	\$22,685.13		\$15,284.19	
	Aug-97	\$43,120.01		\$36,440.54	
	Sep-97	\$32,606.37	\$32,803.84	\$65,508.50	\$39,077.74
	Oct-97	\$24,373.82		\$43,181.45	
	Nov-97	\$40,999.32		\$7,705.16	
	Dec-97	\$38,826.59	\$34,733.24	\$15,669.17	\$22,185.26
Total Inpatient Costs Per 1000		\$1,092,132.45		\$955,682.16	
\$1,037,215.33					

Figure I1

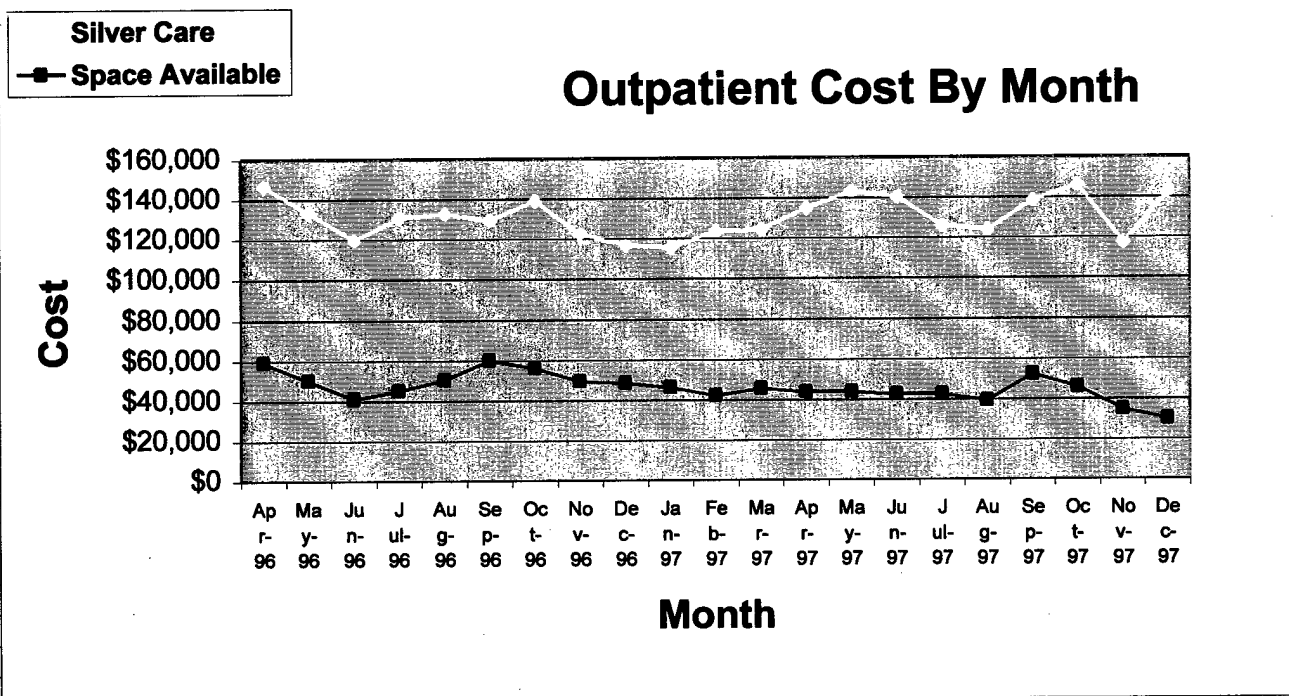


Appendix J					
Outpatient Visits - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
Outpatient Visits By Month			3 Month Trend		3 Month Trend
	Apr-96	1563		690	
	May-96	1430		550	
	Jun-96	1337	1443.333	448	562.666667
	Jul-96	1431		472	
	Aug-96	1444		525	
	Sep-96	1374	1416.333	682	559.666667
	Oct-96	1456		619	
	Nov-96	1260		544	
	Dec-96	1162	1292.667	485	549.333333
	Jan-97	1173		483	
	Feb-97	1296		446	
	Mar-97	1321	1263.333	495	474.666667
	Apr-97	1439		471	
	May-97	1229		366	
	Jun-97	1194	1287.333	344	393.666667
	Jul-97	1047		348	
	Aug-97	1007		297	
	Sep-97	1144	1066	431	358.666667
	Oct-97	1254		382	
	Nov-97	999		261	
	Dec-97	1217	1156.667	236	293
Total Outpatient Visits		26,777		9,575	
36,352					
Figure J1					



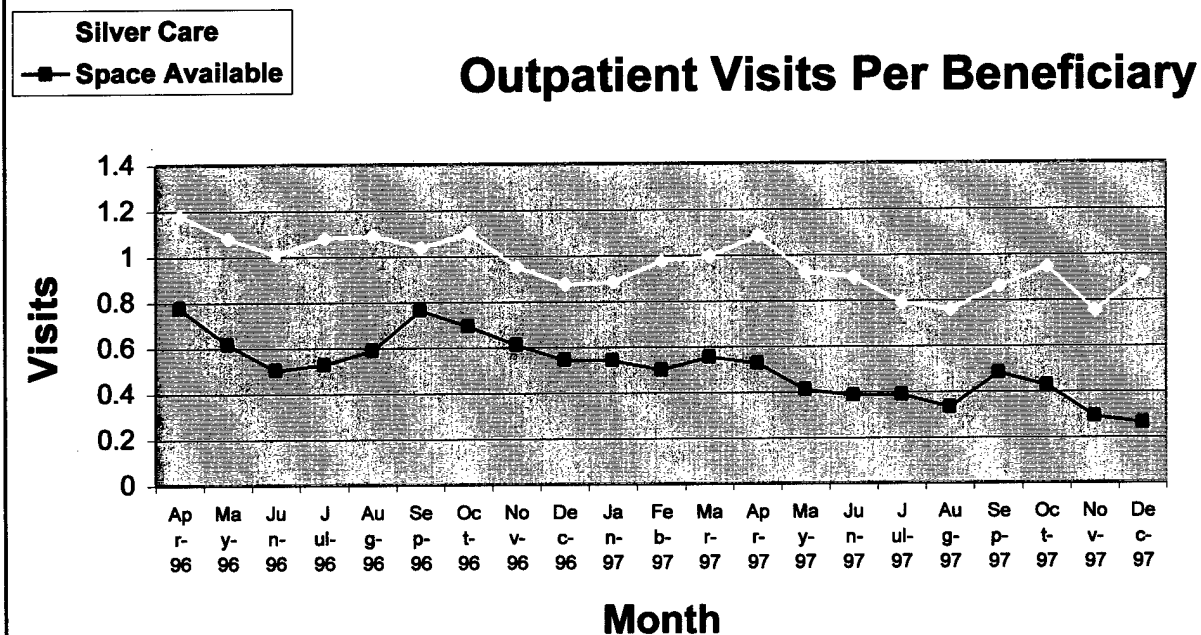
Appendix K					
Outpatient Costs - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Outpatient Cost By Month			Trend		Trend
	Apr-96	\$146,650.64		\$58,894.48	
	May-96	\$133,387.95		\$50,004.26	
	Jun-96	\$119,863.89	\$133,300.83	\$40,808.43	\$49,902.39
	Jul-96	\$130,914.64		\$44,988.16	
	Aug-96	\$132,843.70		\$50,403.38	
	Sep-96	\$129,650.94	\$131,136.43	\$59,986.85	\$51,792.80
	Oct-96	\$139,056.97		\$55,982.04	
	Nov-96	\$122,401.31		\$49,498.10	
	Dec-96	\$117,007.69	\$126,155.32	\$48,483.49	\$51,321.21
	Jan-97	\$115,600.27		\$46,119.99	
	Feb-97	\$123,512.81		\$42,245.79	
	Mar-97	\$124,659.33	\$121,257.47	\$45,524.32	\$44,630.03
	Apr-97	\$135,103.39		\$43,632.58	
	May-97	\$143,592.34		\$43,858.99	
	Jun-97	\$140,379.03	\$139,691.59	\$42,398.46	\$43,296.68
	Jul-97	\$126,136.72		\$42,407.25	
	Aug-97	\$123,994.07		\$39,135.24	
	Sep-97	\$138,840.73	\$129,657.17	\$52,146.67	\$44,563.05
	Oct-97	\$146,032.85		\$45,899.68	
	Nov-97	\$117,606.97		\$34,714.18	
	Dec-97	\$142,709.18	\$135,449.67	\$30,141.25	\$36,918.37
Total Outpatient Costs		\$2,749,945.42		\$967,273.59	
\$3,717,219.01					

Figure K1



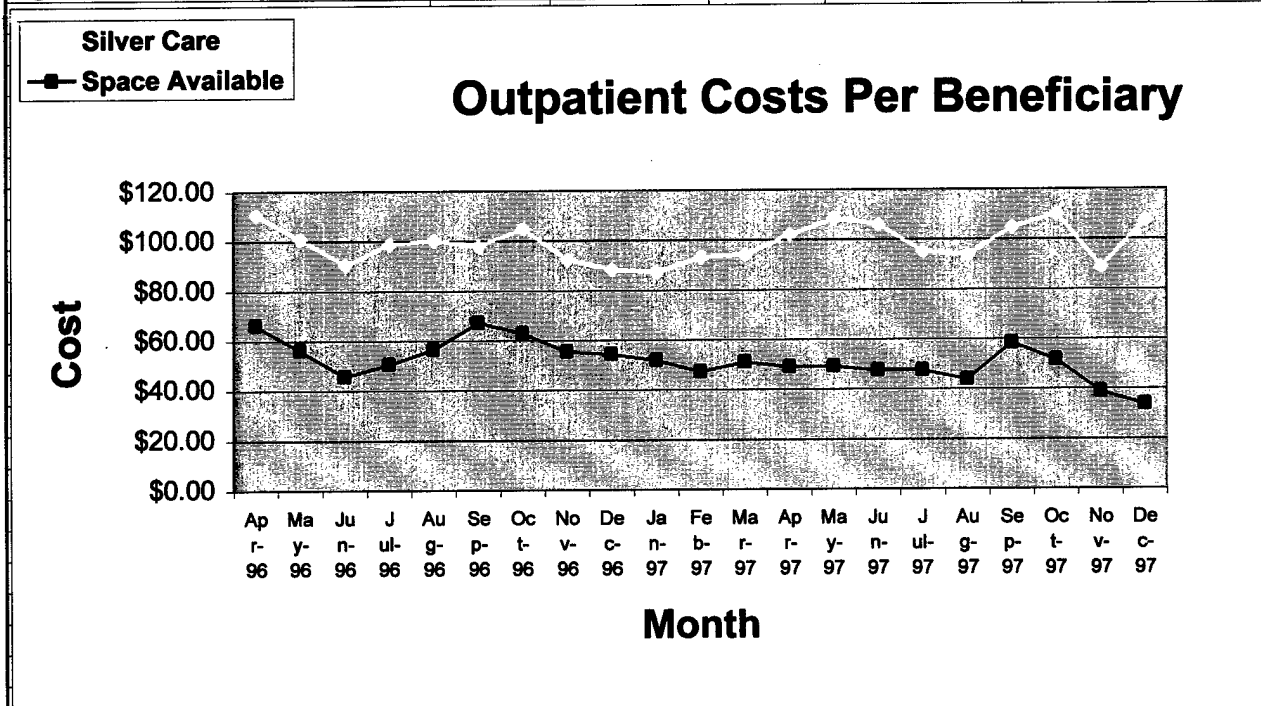
Appendix L					
Outpatient Visits Per Beneficiary - Dual-Eligible Population (Living)					
Visits Per Beneficiary By Month		Silver Care	3 Month Trend	Space Available	3 Month Trend
	Apr-96	1.181		0.774	
	May-96	1.08		0.617	
	Jun-96	1.01	1.090	0.502	0.631
	Jul-96	1.081		0.529	
	Aug-96	1.091		0.589	
	Sep-96	1.038	1.070	0.765	0.628
	Oct-96	1.1		0.694	
	Nov-96	0.952		0.61	
	Dec-96	0.878	0.977	0.544	0.616
	Jan-97	0.886		0.541	
	Feb-97	0.979		0.5	
	Mar-97	0.998	0.954	0.555	0.532
	Apr-97	1.087		0.528	
	May-97	0.928		0.41	
	Jun-97	0.902	0.972	0.386	0.441
	Jul-97	0.791		0.39	
	Aug-97	0.761		0.333	
	Sep-97	0.864	0.805333	0.483	0.402
	Oct-97	0.947		0.428	
	Nov-97	0.755		0.293	
	Dec-97	0.919	0.874	0.265	0.329
Visits Per Beneficiary		20.224		10.76	
16.404					

Figure L1



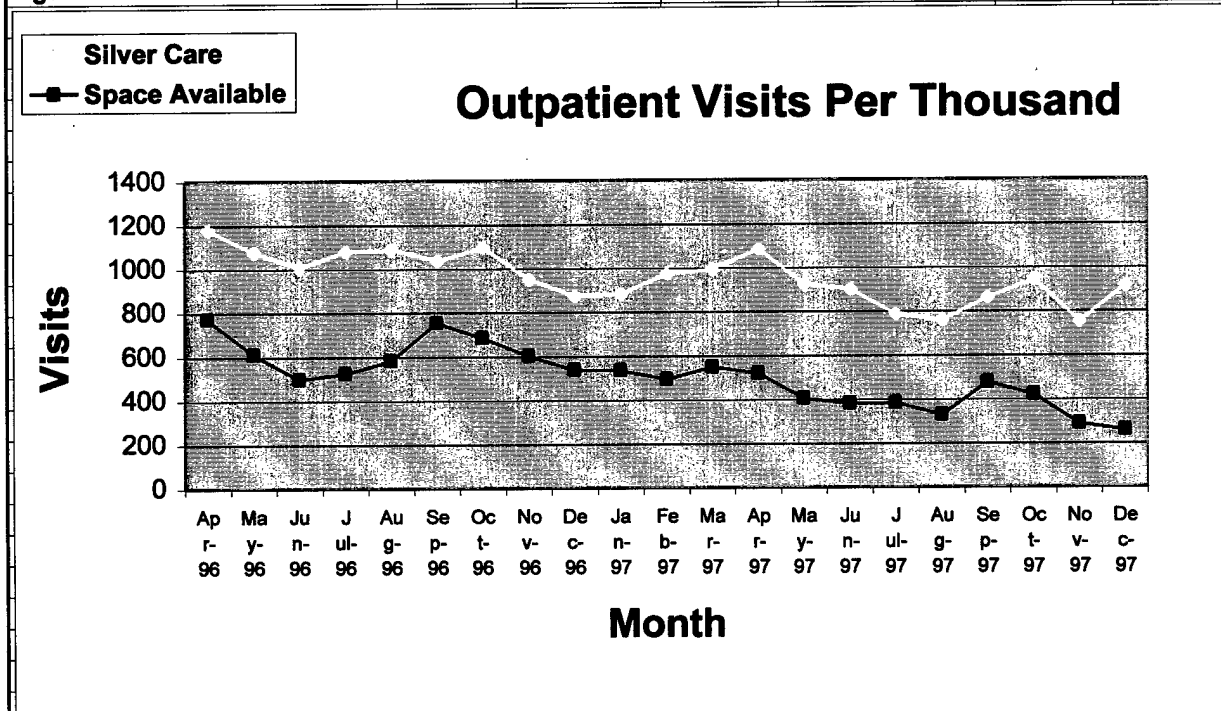
Appendix M					
Outpatient Costs Per Beneficiary - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Costs Per Beneficiary By Month			Trend		Trend
	Apr-96	\$110.76		\$66.03	
	May-96	\$100.75		\$56.06	
	Jun-96	\$90.53	\$100.68	\$45.75	\$55.94
	Jul-96	\$98.88		\$50.44	
	Aug-96	\$100.34		\$56.51	
	Sep-96	\$97.92	\$99.05	\$67.25	\$58.06
	Oct-96	\$105.03		\$62.76	
	Nov-96	\$92.45		\$55.49	
	Dec-96	\$88.37	\$95.28	\$54.35	\$57.54
	Jan-97	\$87.31		\$51.70	
	Feb-97	\$93.29		\$47.36	
	Mar-97	\$94.15	\$91.58	\$51.04	\$50.03
	Apr-97	\$102.04		\$48.92	
	May-97	\$108.45		\$49.17	
	Jun-97	\$106.03	\$105.51	\$47.53	\$48.54
	Jul-97	\$95.27		\$47.54	
	Aug-97	\$93.65		\$43.87	
	Sep-97	\$104.87	\$97.93	\$58.46	\$49.96
	Oct-97	\$110.30		\$51.46	
	Nov-97	\$88.83		\$38.92	
	Dec-97	\$107.79	\$102.30	\$33.79	\$41.39
Total Cost Per Beneficiary		\$2,077.00		\$1,084.39	
\$1,677.45					

Figure M1



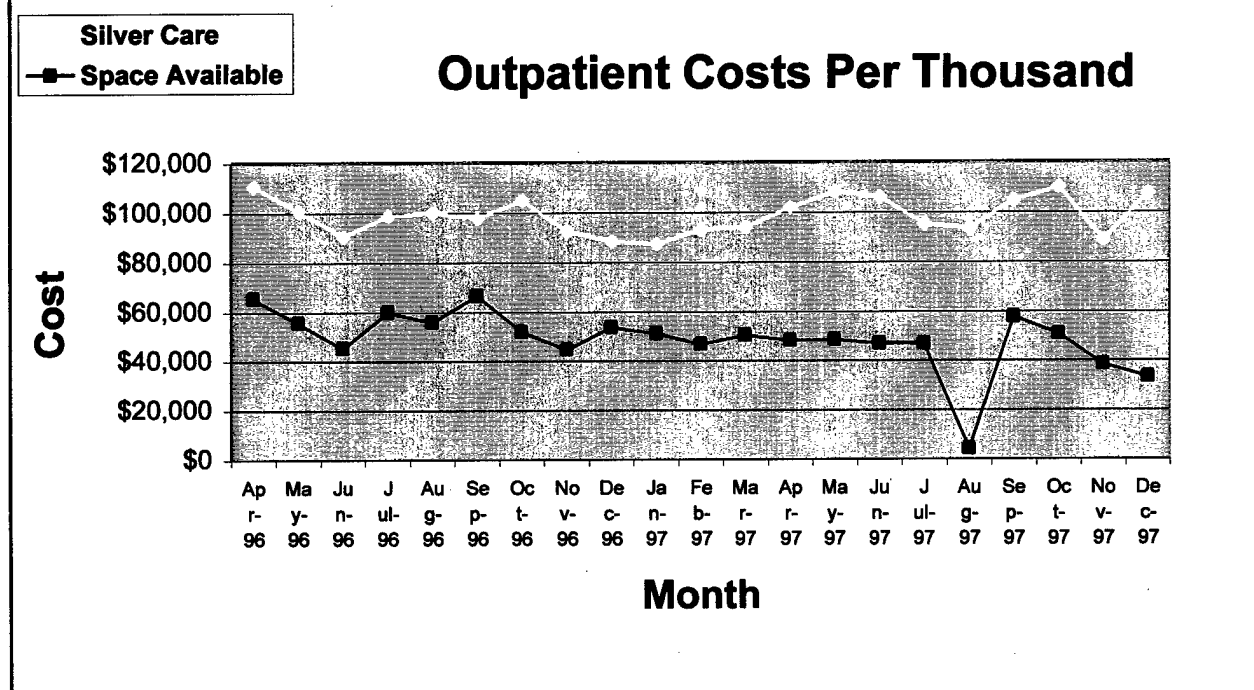
Appendix N					
Outpatient Visits Per Thousand - Dual-Eligible Population (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Visit Per Thousand By Month			Trend		Trend
	Apr-96	1180.51		773.54	
	May-96	1080.06		609.08	
	Jun-96	1009.82	1090.131	496.12	626.25
	Jul-96	1080.82		522.70	
	Aug-96	1090.63		581.40	
	Sep-96	1037.76	1069.74	755.26	619.7857
	Oct-96	1099.70		685.49	
	Nov-96	951.66		602.44	
	Dec-96	877.64	976.33	537.10	608.34
	Jan-97	885.95		534.88	
	Feb-97	978.85		493.91	
	Mar-97	997.73	954.18	548.17	525.6553
	Apr-97	1086.86		521.60	
	May-97	928.25		405.32	
	Jun-97	901.81	972.31	380.95	435.9543
	Jul-97	790.79		385.38	
	Aug-97	760.57		328.90	
	Sep-97	864.05	805.14	477.30	397.1947
	Oct-97	947.13		423.03	
	Nov-97	754.53		289.04	
	Dec-97	919.18	873.62	261.35	324.47
Total Visits Per Thousand		20,224.32		10,734.31	
16,404.33					

Figure N1



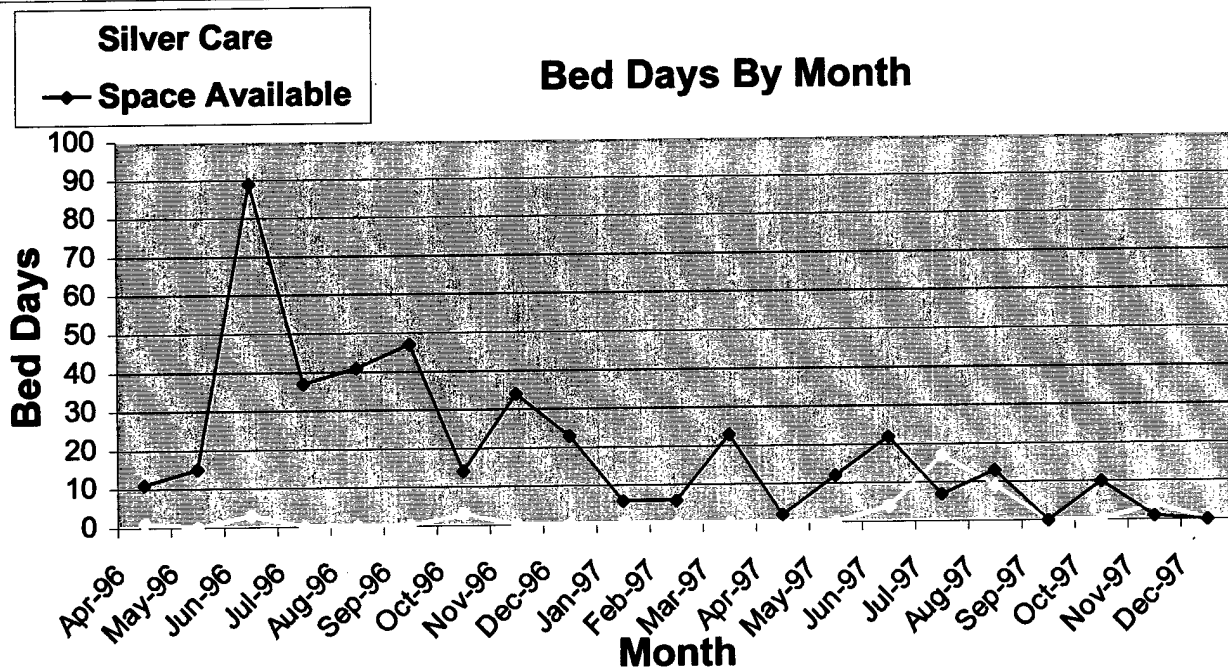
Appendix O					
Outpatient Costs Per Thousand (Living)					
		Silver Care		Space Available	
			3 Month		3 Month
Costs Per Thousand By Month			Trend		Trend
	Apr-96	\$110,763.32		\$65,220.91	
	May-96	\$100,746.19		\$55,375.70	
	Jun-96	\$90,531.64	\$100,680.38	\$45,192.06	\$55,262.89
	Jul-96	\$98,878.13		\$59,820.78	
	Aug-96	\$100,335.12		\$55,817.70	
	Sep-96	\$97,923.67	\$99,045.64	\$66,430.62	\$60,689.70
	Oct-96	\$105,027.92		\$51,995.62	
	Nov-96	\$92,448.12		\$44,815.17	
	Dec-96	\$88,374.39	\$95,283.48	\$53,691.57	\$50,167.45
	Jan-97	\$87,311.38		\$51,074.19	
	Feb-97	\$93,287.62		\$46,783.82	
	Mar-97	\$94,153.57	\$91,584.19	\$50,414.53	\$49,424.18
	Apr-97	\$102,041.84		\$48,319.58	
	May-97	\$108,453.43		\$48,570.31	
	Jun-97	\$106,026.46	\$105,507.24	\$46,952.89	\$47,947.59
	Jul-97	\$95,269.43		\$46,962.63	
	Aug-97	\$93,651.11		\$4,339.14	
	Sep-97	\$104,864.60	\$97,928.38	\$57,748.25	\$36,350.00
	Oct-97	\$110,296.71		\$50,830.21	
	Nov-97	\$88,827.02		\$38,443.17	
	Dec-97	\$107,786.40	\$102,303.38	\$33,379.01	\$40,884.13
Total Costs Per Thousand		\$2,076,998.05		\$1,084,387.43	
\$1,677,445.40					

Figure O1



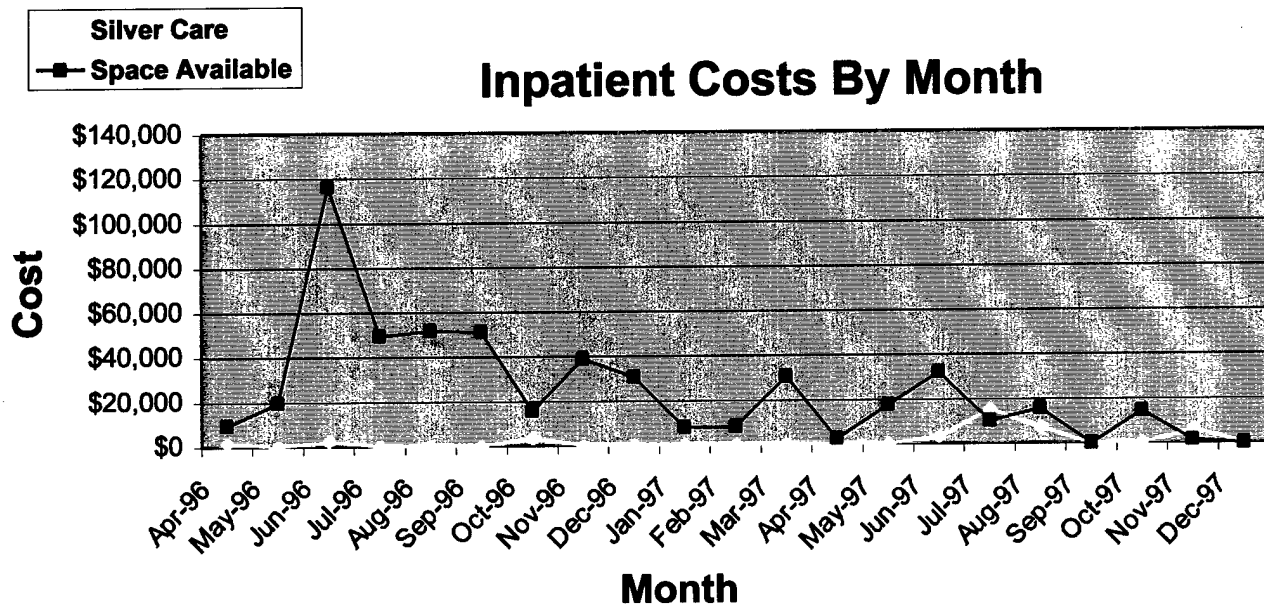
Appendix P					
Bed Days - Dual-Eligible Population (Deceased)					
Bed Days By Month	Silver Care		3 Month Trend	Space Available	
					3 Month Trend
	Apr-96	1		11	
	May-96	0		15	
	Jun-96	3	1.33333	89	38.3333
	Jul-96	0		37	
	Aug-96	0		41	
	Sep-96	0	0	47	41.6667
	Oct-96	3		14	
	Nov-96	0		34	
	Dec-96	0	1	23	23.6667
	Jan-97	0		6	
	Feb-97	0		6	
	Mar-97	0	0	23	11.6667
	Apr-97	0		2	
	May-97	0		12	
	Jun-97	4	7	22	12
	Jul-97	17		7	
	Aug-97	9		13	
	Sep-97	0	8.66667	0	6.66667
	Oct-97	0		10	
	Nov-97	4		1	
	Dec-97	0	1.33333	0	3.66667
Total Bed Days		41		413	
454					

Figure P1



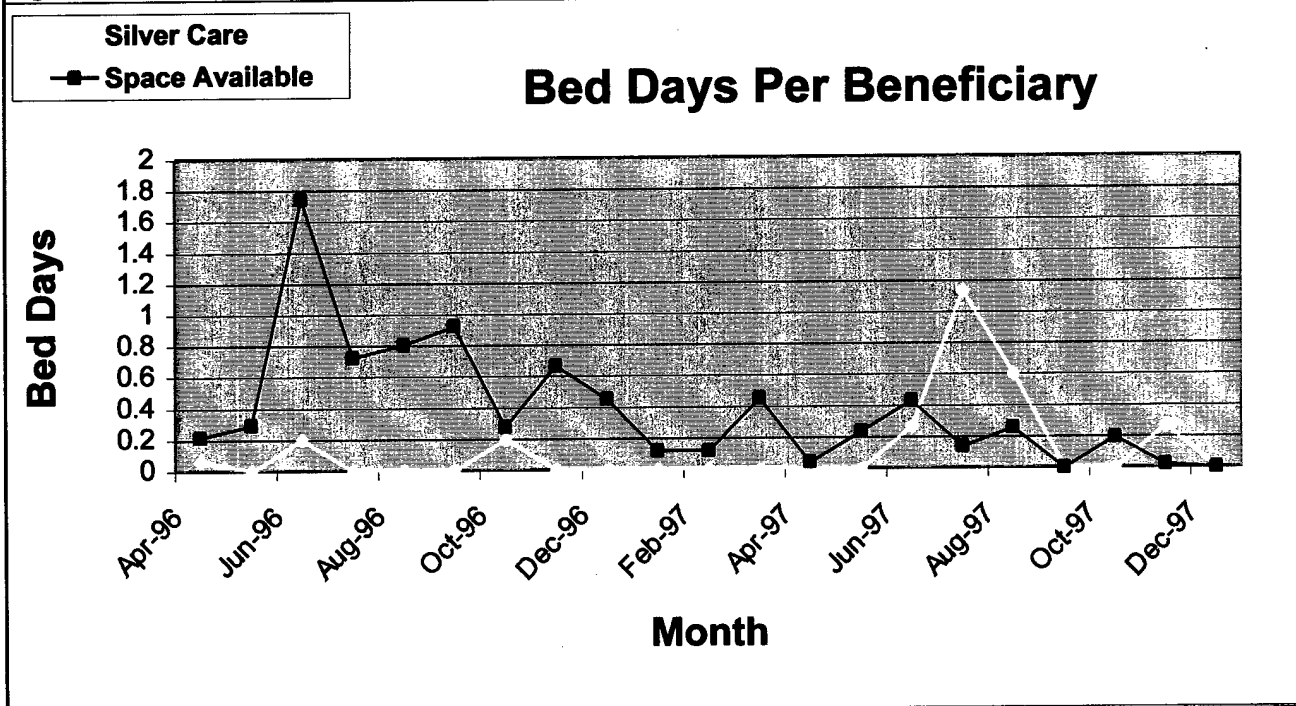
Appendix Q					
Inpatient Costs - Dual-Eligible Population (Deceased)					
Inpatient Cost By Month		Silver Care	3 Month Trend	Space Available	3 Month Trend
	Apr-96	\$1,334.44		\$9,295.49	
	May-96	\$0.00		\$19,642.92	
	Jun-96	\$2,217.78	\$1,184.07	\$116,523.08	\$48,487.16
	Jul-96	\$0.00		\$49,374.28	
	Aug-96	\$0.00		\$51,736.14	
	Sep-96	\$0.00	\$0.00	\$51,126.08	\$50,745.50
	Oct-96	\$3,442.80		\$15,706.26	
	Nov-96	\$0.00		\$38,959.25	
	Dec-96	\$0.00	\$1,147.60	\$30,692.12	\$28,452.54
	Jan-97	\$0.00		\$8,006.64	
	Feb-97	\$0.00		\$8,136.68	
	Mar-97	\$0.00	\$0.00	\$30,692.12	\$15,611.81
	Apr-97	\$0.00		\$2,668.88	
	May-97	\$0.00		\$17,573.76	
	Jun-97	\$3,137.40	\$1,045.80	\$32,218.56	\$17,487.07
	Jul-97	\$15,374.34		\$10,251.36	
	Aug-97	\$7,059.15		\$15,637.59	
	Sep-97	\$0.00	\$7,477.83	\$0.00	\$8,629.65
	Oct-97	\$0.00		\$14,644.80	
	Nov-97	\$5,857.92		\$1,334.44	
	Dec-97	\$0.00	\$1,952.64	\$0.00	\$5,326.41
Total Inpatient Costs		\$38,423.83		\$524,220.45	
\$562,644.28					

Figure Q1



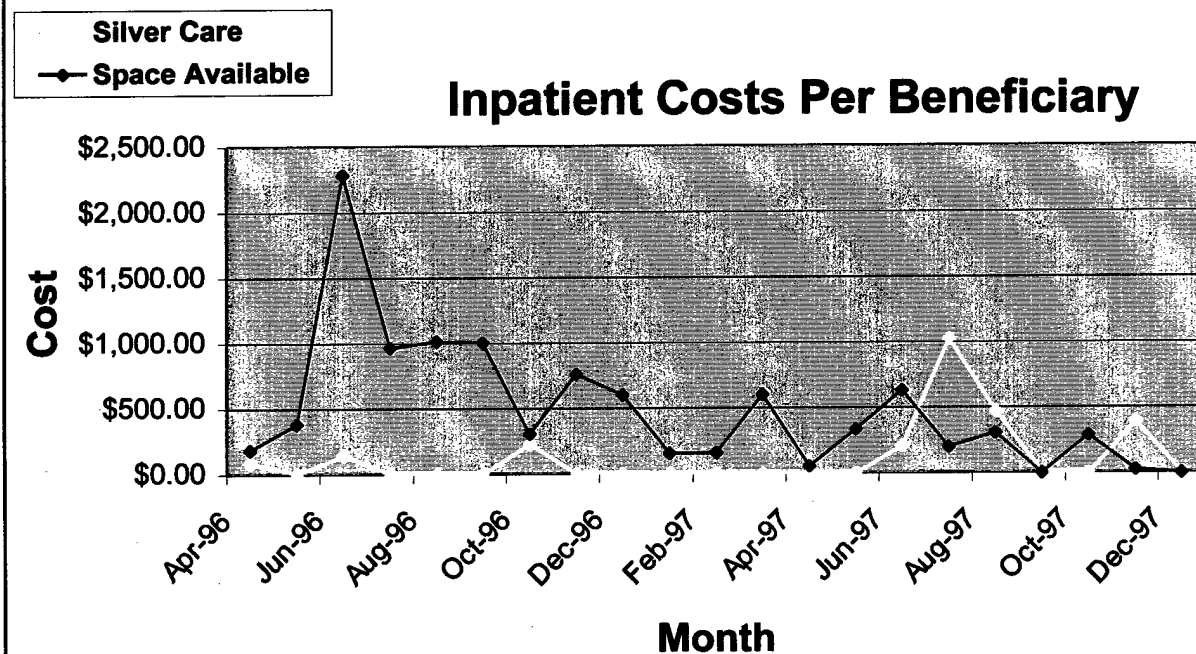
Appendix R					
Bed Days Per Beneficiary - Dual-Eligible Population (Deceased)					
Bed Days Per Beneficiary By Month		Silver Care		Space Available	
			3 Month Trend		3 Month Trend
	Apr-96	0.067		0.216	
	May-96	0		0.294	
	Jun-96	0.2	0.089	1.745	0.75167
	Jul-96	0		0.725	
	Aug-96	0		0.804	
	Sep-96	0	0.000	0.922	0.817
	Oct-96	0.2		0.275	
	Nov-96	0		0.667	
	Dec-96	0	0.067	0.451	0.46433
	Jan-97	0		0.118	
	Feb-97	0		0.118	
	Mar-97	0	0.000	0.451	0.229
	Apr-97	0		0.039	
	May-97	0		0.235	
	Jun-97	0.267	0.089	0.431	0.235
	Jul-97	1.133		0.137	
	Aug-97	0.6		0.255	
	Sep-97	0	0.578	0	0.13067
	Oct-97	0		0.196	
	Nov-97	0.267		0.02	
	Dec-97	0	0.089	0	0.072
Bed Days Per Beneficiary		2.733		8.098	
6.879					

Figure R1



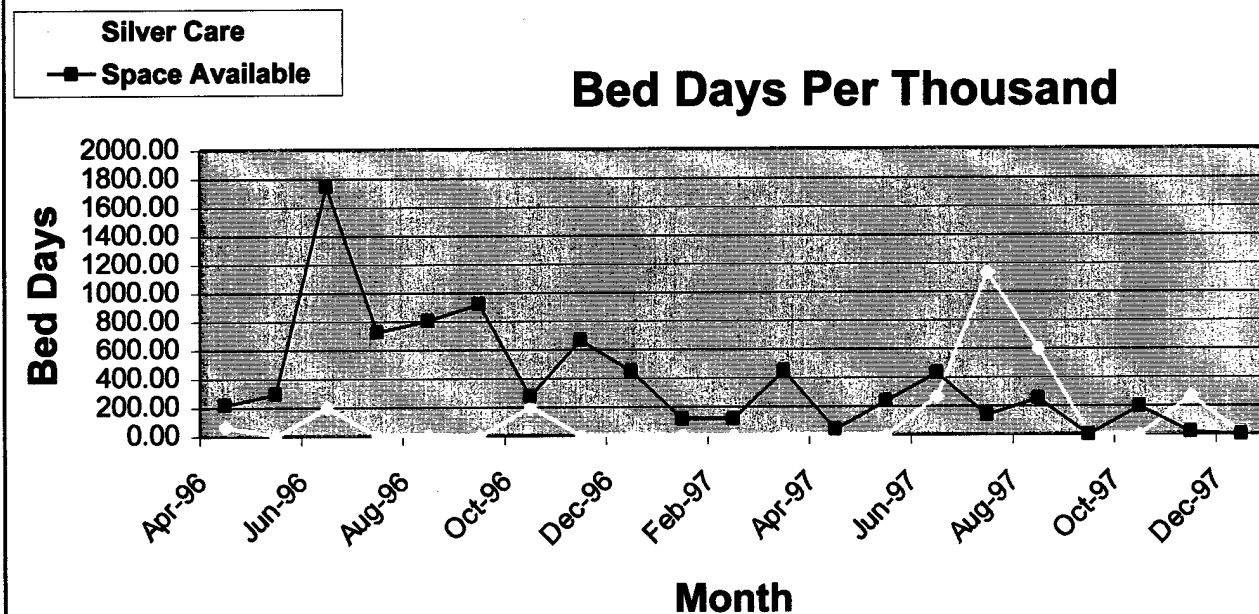
Appendix S					
Inpatient Costs Per Beneficiary - Dual-Eligible Population (Deceased)					
		Silver Care		Space Available	
			3 Month		3 Month
Inpatient Cost Per Beneficiary			Trend		Trend
	Apr-96	\$88.96		\$182.27	
	May-96	\$0.00		\$385.16	
	Jun-96	\$147.85	\$78.94	\$2,284.77	\$950.73
	Jul-96	\$0.00		\$968.12	
	Aug-96	\$0.00		\$1,014.43	
	Sep-96	\$0.00	\$0.00	\$1,002.47	\$995.01
	Oct-96	\$229.52		\$307.97	
	Nov-96	\$0.00		\$763.91	
	Dec-96	\$0.00	\$76.51	\$601.81	\$557.89
	Jan-97	\$0.00		\$156.99	
	Feb-97	\$0.00		\$159.54	
	Mar-97	\$0.00	\$0.00	\$601.81	\$306.11
	Apr-97	\$0.00		\$52.33	
	May-97	\$0.00		\$334.58	
	Jun-97	\$209.16	\$69.72	\$631.74	\$339.55
	Jul-97	\$1,024.96		\$201.01	
	Aug-97	\$470.61		\$306.62	
	Sep-97	\$0.00	\$498.52	\$0.00	\$169.21
	Oct-97	\$0.00		\$287.15	
	Nov-97	\$390.53		\$26.17	
	Dec-97	\$0.00	\$130.18	\$0.00	\$104.44
Total Cost Per Beneficiary		\$2,561.59		\$10,278.80	
\$8,524.91					

Figure S1



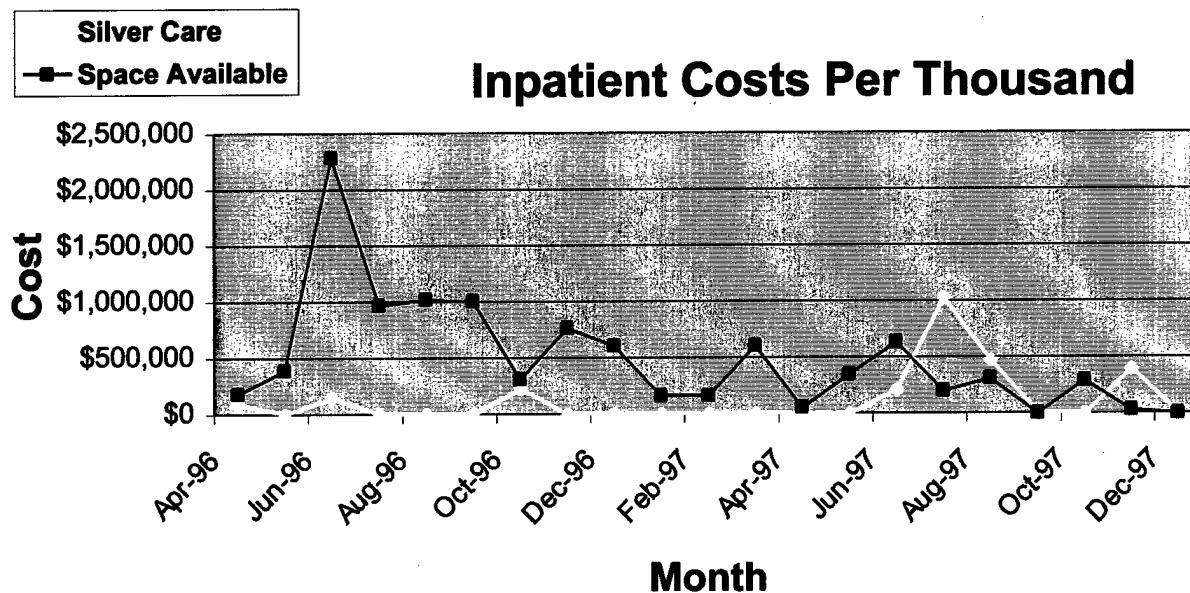
Appendix T					
Bed Days Per Thousand - Dual-Eligible Population (Deceased)					
		Silver Care		Space Available	
Bed Days Per 1000 By Month			3 Month Trend		3 Month Trend
	Apr-96	66.67		215.69	
	May-96	0.00		294.12	
	Jun-96	200.00	88.89	1745.10	751.64
	Jul-96	0.00		725.49	
	Aug-96	0.00		803.92	
	Sep-96	0.00	0.00	921.57	816.99
	Oct-96	200.00		274.51	
	Nov-96	0.00		666.67	
	Dec-96	0.00	66.67	450.98	464.05
	Jan-97	0.00		117.65	
	Feb-97	0.00		117.65	
	Mar-97	0.00	0.00	450.98	228.76
	Apr-97	0.00		39.22	
	May-97	0.00		235.29	
	Jun-97	266.67	88.89	431.37	235.29
	Jul-97	1133.33		137.25	
	Aug-97	600.00		254.90	
	Sep-97	0.00	577.78	0.00	130.72
	Oct-97	0.00		196.08	
	Nov-97	266.67		19.61	
	Dec-97	0.00	88.89	0.00	71.90
Total Bed Days Per 1000		2,733.33		8,098.04	
6,878.79					

Figure T1



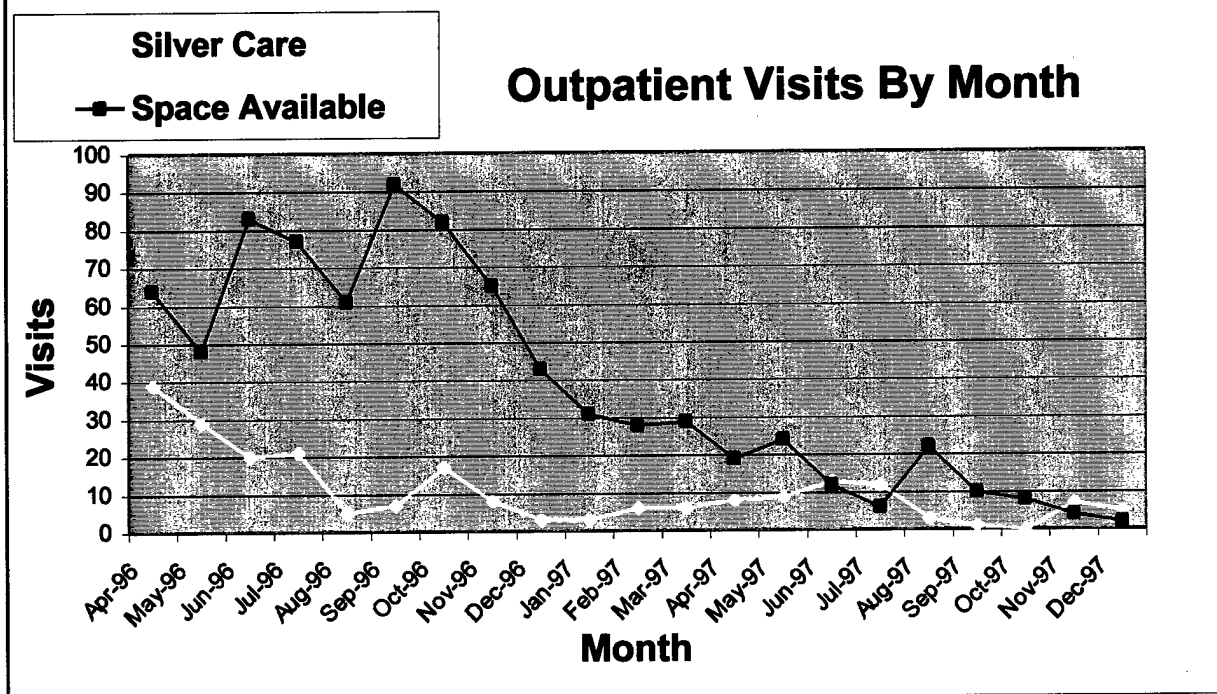
Appendix U					
Inpatient Costs Per Thousand - Dual-Eligible Population (Deceased)					
		Silver Care		Space Available	
			3 Month		3 Month
Inpatient Costs Per 1000 By Month			Trend		Trend
	Apr-96	\$88,962.67		\$182,264.51	
	May-96	\$0.00		\$385,155.29	
	Jun-96	\$147,852.00	\$78,938.22	\$2,284,766.27	\$950,728.69
	Jul-96	\$0.00		\$968,123.14	
	Aug-96	\$0.00		\$1,014,434.12	
	Sep-96	\$0.00	\$0.00	\$1,002,472.16	\$995,009.81
	Oct-96	\$229,520.00		\$307,965.88	
	Nov-96	\$0.00		\$763,906.86	
	Dec-96	\$0.00	\$76,506.67	\$601,806.27	\$557,893.00
	Jan-97	\$0.00		\$156,992.94	
	Feb-97	\$0.00		\$159,542.75	
	Mar-97	\$0.00	\$0.00	\$601,806.27	\$306,113.99
	Apr-97	\$0.00		\$52,330.98	
	May-97	\$0.00		\$344,583.53	
	Jun-97	\$209,160.00	\$69,720.00	\$631,736.47	\$342,883.66
	Jul-97	\$1,024,956.00		\$201,007.06	
	Aug-97	\$470,610.00		\$306,619.41	
	Sep-97	\$0.00	\$498,522.00	\$0.00	\$169,208.82
	Oct-97	\$0.00		\$287,152.94	
	Nov-97	\$390,528.00		\$26,165.49	
	Dec-97	\$0.00	\$130,176.00	\$0.00	\$104,439.48
Total Inpatient Costs Per 1000		\$2,561,588.67		\$10,278,830.35	
\$8,524,913.33					

Figure U1



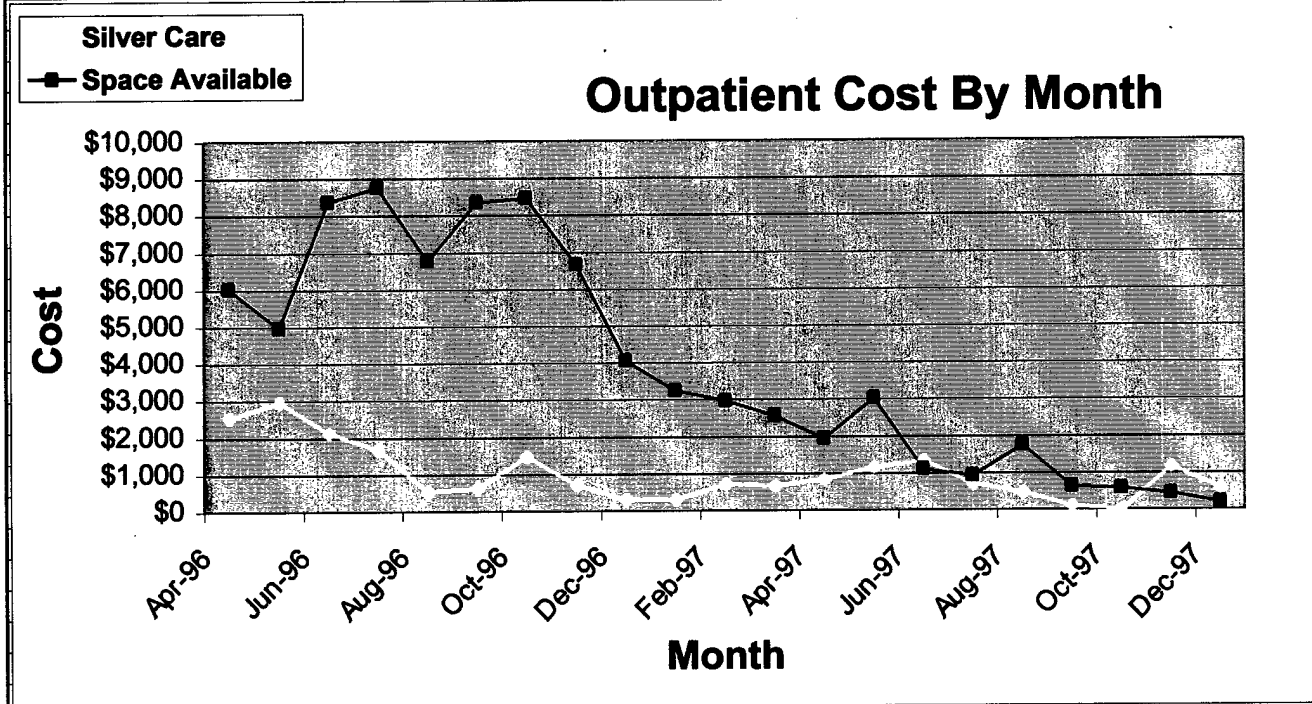
Appendix V					
Outpatient Visits - Dual-Eligible Population (Deceased)					
Outpatient Visits By Month		Silver Care	3 Month Trend	Space Available	3 Month Trend
	Apr-96	39		64	
	May-96	29		48	
	Jun-96	20	29.33333	83	65
	Jul-96	21		77	
	Aug-96	5		61	
	Sep-96	7	11	92	76.66667
	Oct-96	17		82	
	Nov-96	8		65	
	Dec-96	3	9.333333	43	63.33333
	Jan-97	3		31	
	Feb-97	6		28	
	Mar-97	6	5	29	29.33333
	Apr-97	8		19	
	May-97	9		24	
	Jun-97	13	10	12	18.33333
	Jul-97	12		6	
	Aug-97	3		22	
	Sep-97	1	5.333333	10	12.66667
	Oct-97	0		8	
	Nov-97	7		4	
	Dec-97	5	4	2	4.666667
Total Outpatient Visits		222		810	
1,032					

Figure V1



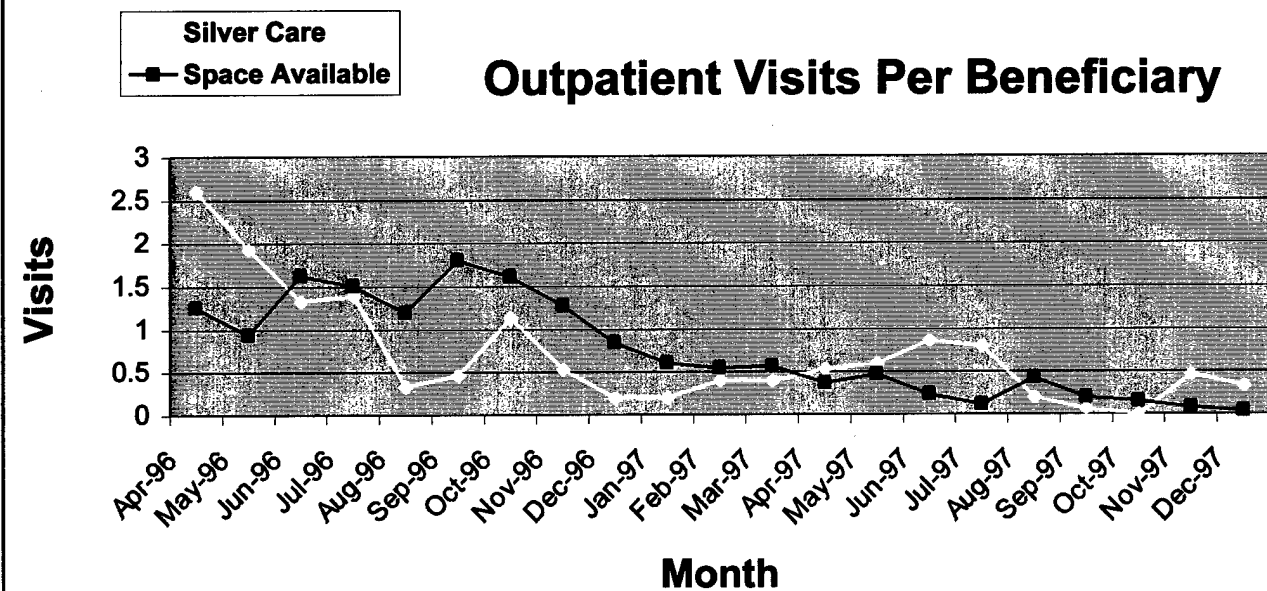
Appendix W					
Outpatient Costs - Dual-Eligible Population (Deceased)					
		Silver Care		Space Available	
Outpatient Cost By Month			3 Month Trend		3 Month Trend
	Apr-96	\$2,536.90		\$6,035.25	
	May-96	\$2,947.23		\$4,971.45	
	Jun-96	\$2,134.32	\$2,539.48	\$8,371.82	\$6,459.51
	Jul-96	\$1,675.62		\$8,765.52	
	Aug-96	\$524.54		\$6,762.67	
	Sep-96	\$632.26	\$944.14	\$8,352.41	\$7,960.20
	Oct-96	\$1,486.13		\$8,465.31	
	Nov-96	\$698.59		\$6,674.81	
	Dec-96	\$316.31	\$833.68	\$4,062.23	\$6,400.78
	Jan-97	\$309.26		\$3,239.05	
	Feb-97	\$722.66		\$2,973.44	
	Mar-97	\$663.78	\$565.23	\$2,559.73	\$2,924.07
	Apr-97	\$847.61		\$1,947.55	
	May-97	\$1,167.41		\$3,026.29	
	Jun-97	\$1,333.44	\$1,116.15	\$1,114.55	\$2,029.46
	Jul-97	\$729.36		\$925.18	
	Aug-97	\$462.50		\$1,744.41	
	Sep-97	\$101.07	\$430.98	\$640.68	\$1,103.42
	Oct-97	\$0.00		\$589.46	
	Nov-97	\$1,176.76		\$442.98	
	Dec-97	\$579.18	\$585.31	\$212.33	\$414.92
Total Outpatient Costs		\$21,044.93		\$81,877.12	
\$102,922.05					

Figure W1



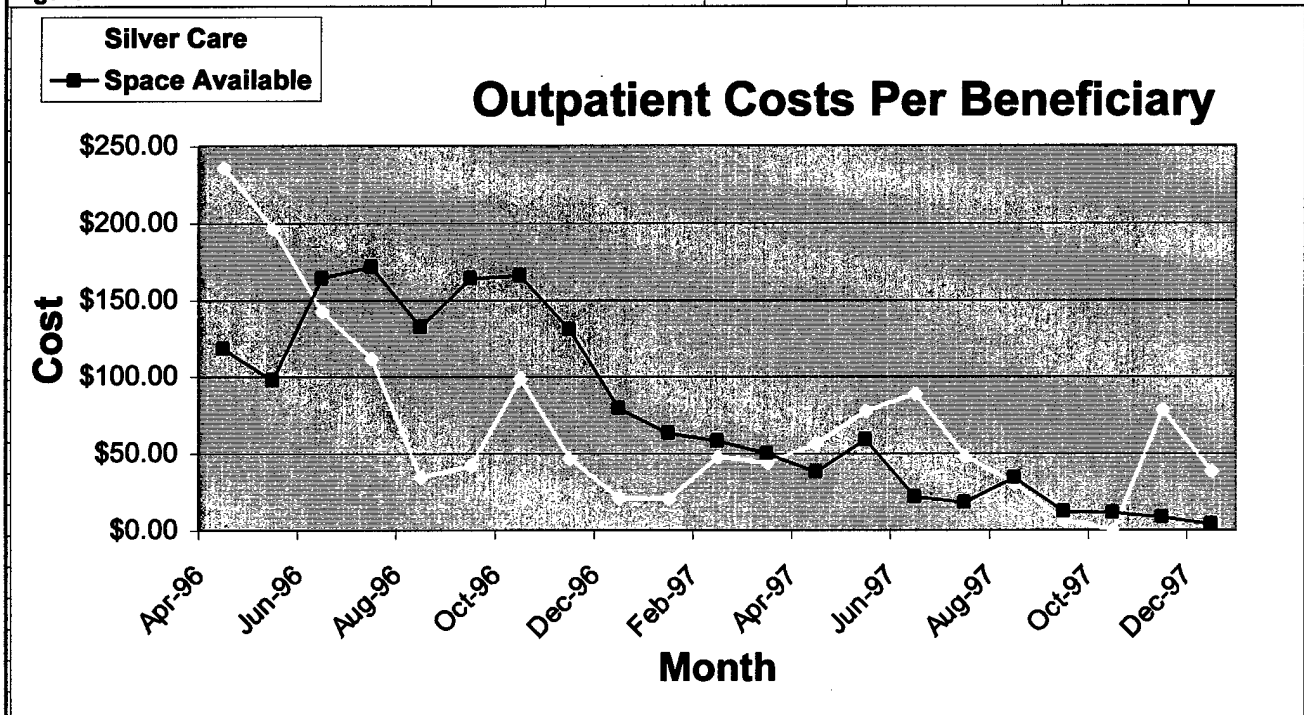
Appendix X					
Outpatient Visits Per Beneficiary - Dual-Eligible Population (Deceased)					
		Silver Care		Space Available	
Visits Per Beneficiary By Month			3 Month Trend		3 Month Trend
	Apr-96	2.6		1.255	
	May-96	1.933		0.941	
	Jun-96	1.333	1.955	1.627	1.27433333
	Jul-96	1.4		1.51	
	Aug-96	0.333		1.196	1.647
	Sep-96	0.467	0.733	1.804	1.503
	Oct-96	1.133		1.608	
	Nov-96	0.533		1.275	
	Dec-96	0.2	0.622	0.843	1.242
	Jan-97	0.2		0.608	
	Feb-97	0.4		0.549	
	Mar-97	0.4	0.333	0.569	0.575
	Apr-97	0.533		0.373	
	May-97	0.6		0.471	
	Jun-97	0.867	0.667	0.235	0.360
	Jul-97	0.8		0.118	
	Aug-97	0.2		0.431	
	Sep-97	0.067	0.3556667	0.196	0.248
	Oct-97	0		0.157	
	Nov-97	0.467		0.078	
	Dec-97	0.333	0.267	0.039	0.091
Visits Per Beneficiary		14.80		15.882	
15.636					

Figure X1



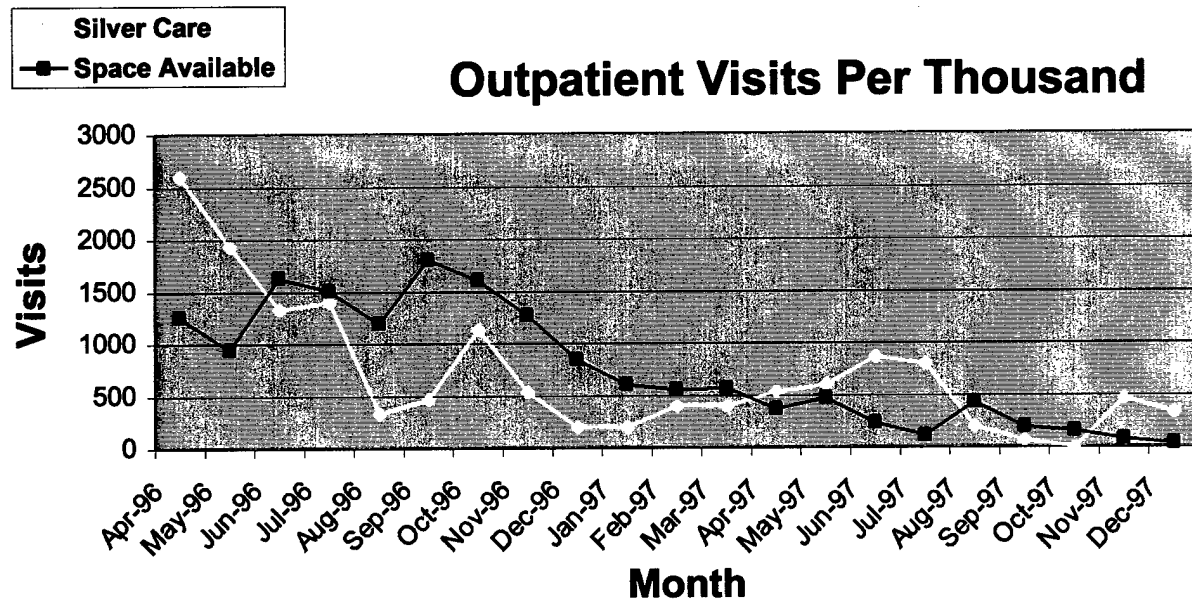
Appendix Y					
Outpatient Costs Per Beneficiary - Dual-Eligible Population (Deceased)					
		Silver Care		Space Available	
			3 Month		3 Month
Costs Per Beneficiary By Month			Trend		Trend
	Apr-96	\$235.79		\$118.34	
	May-96	\$196.48		\$97.48	
	Jun-96	\$142.29	\$191.52	\$164.15	\$126.66
	Jul-96	\$111.71		\$171.87	
	Aug-96	\$34.97		\$132.60	
	Sep-96	\$42.15	\$62.94	\$163.77	\$156.08
	Oct-96	\$99.08		\$165.99	
	Nov-96	\$46.57		\$130.88	
	Dec-96	\$21.09	\$55.58	\$79.65	\$125.51
	Jan-97	\$20.62		\$63.51	
	Feb-97	\$48.18		\$58.30	
	Mar-97	\$44.25	\$37.68	\$50.19	\$57.34
	Apr-97	\$56.51		\$38.19	
	May-97	\$77.83		\$59.34	
	Jun-97	\$88.90	\$74.41	\$21.85	\$39.79
	Jul-97	\$48.62		\$18.14	
	Aug-97	\$30.83		\$34.20	
	Sep-97	\$6.74	\$28.73	\$12.56	\$21.64
	Oct-97	\$0.00		\$11.56	
	Nov-97	\$78.45		\$8.69	
	Dec-97	\$38.61	\$39.02	\$4.16	\$8.14
Total Cost Per Beneficiary		\$1,469.66		\$1,605.75	
\$1,574.82					

Figure Y1



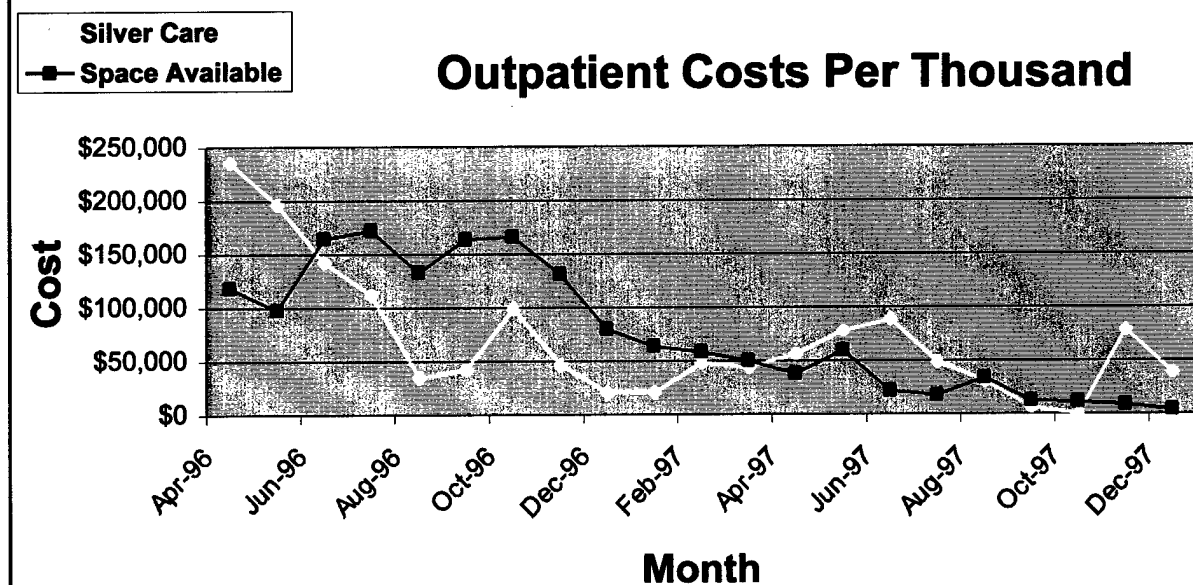
Appendix Z					
Outpatient Visits Per Thousand - Dual-Eligible Population (Deceased)					
Visits Per Thousand By Month		Silver Care	3 Month Trend	Space Available	3 Month Trend
	Apr-96	2600.00		1254.90	
	May-96	1933.33		941.18	
	Jun-96	1333.33	1955.554	1627.45	1274.51
	Jul-96	1400.00		1509.80	
	Aug-96	333.33		1196.08	
	Sep-96	466.67	733.33	1803.92	1503.268
	Oct-96	1133.33		1607.84	
	Nov-96	533.33		1274.51	
	Dec-96	200.00	622.22	843.14	1241.83
	Jan-97	200.00		607.84	
	Feb-97	400.00		549.02	
	Mar-97	400.00	333.33	568.63	575.1634
	Apr-97	533.33		372.55	
	May-97	600.00		470.59	
	Jun-97	866.67	666.67	235.29	359.4771
	Jul-97	800.00		117.65	
	Aug-97	200.00		431.37	
	Sep-97	66.67	355.56	196.08	248.366
	Oct-97	0.00		156.86	
	Nov-97	466.67		78.43	
	Dec-97	333.33	266.67	39.22	91.50
Total Visits Per Thousand		14,800.00		15,882.35	
15,636.36					

Figure Z1



Appendix AA					
Outpatient Costs Per Thousand - Dual-Eligible Population (Deceased)					
		Silver Care		Space Available	
			3 Month		3 Month
Costs Per Thousand By Month			Trend		Trend
	Apr-96	\$235,793.33		\$118,338.24	
	May-96	\$196,482.00		\$97,479.41	
	Jun-96	\$142,288.00	\$191,521.11	\$164,153.33	\$126,656.99
	Jul-96	\$111,708.00		\$171,872.94	
	Aug-96	\$34,969.33		\$132,601.37	
	Sep-96	\$42,150.67	\$62,942.67	\$163,772.75	\$156,082.35
	Oct-96	\$99,075.33		\$165,986.47	
	Nov-96	\$46,572.67		\$130,878.63	
	Dec-96	\$21,087.33	\$55,578.44	\$79,651.57	\$125,505.56
	Jan-97	\$20,617.33		\$63,510.78	
	Feb-97	\$48,177.33		\$58,302.75	
	Mar-97	\$44,252.00	\$37,682.22	\$50,190.78	\$57,334.77
	Apr-97	\$56,507.33		\$38,187.25	
	May-97	\$77,827.33		\$59,339.02	
	Jun-97	\$88,896.00	\$74,410.22	\$21,853.92	\$39,793.40
	Jul-97	\$48,624.00		\$18,140.78	
	Aug-97	\$30,833.33		\$34,204.12	
	Sep-97	\$6,738.00	\$28,731.78	\$12,562.35	\$21,635.75
	Oct-97	\$0.00		\$11,558.04	
	Nov-97	\$78,450.67		\$8,685.88	
	Dec-97	\$38,612.00	\$39,020.89	\$4,163.33	\$8,135.75
Total Costs Per Thousand		\$1,469,662.00		\$1,605,747.45	
\$8,524,913.33					

Figure AA1



Appendix AB

Table AB1

Descriptive Statistics - Results of Health Status and Patient Satisfaction Survey

<u>Survey Items^a</u>	<u>N</u>	<u>Population</u>		<u>Space Available</u>		<u>Silver Care</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Health Status	234	2.97	1.09	2.80	1.03	3.04	1.10
Access #1	234	4.64	0.72	3.97	1.01	4.89	.33
Access #2	234	3.98	1.24	2.55	1.11	4.52	.76
Access #3	234	3.57	1.42	2.13	1.18	4.11	1.08
Access #4	234	3.74	1.19	2.48	.91	4.21	.91
Availability #1	234	4.06	1.09	3.02	1.24	4.45	.71
Availability #2	234	3.79	1.12	2.78	1.12	4.16	.85
Availability #3	234	4.12	.96	3.70	.75	4.27	.98
Continuity of Care #1	234	3.81	1.19	2.70	1.11	4.22	.93
Continuity of Care #2	234	3.88	1.19	2.80	1.09	4.29	.96
Financial #1	234	4.10	.97	3.34	.88	4.39	.84
Financial #2	234	4.30	.73	3.50	.59	4.61	.53
General Satisfaction #1	234	4.36	.70	4.03	.87	4.49	.58
General Satisfaction #2	234	4.28	.74	3.73	.88	4.48	.57
General Satisfaction #3	234	4.07	.91	3.27	.96	4.38	.68
General Satisfaction #4	234	4.08	.89	3.20	.95	4.41	.61
Physician Conduct #1	234	4.28	.62	3.92	.48	4.41	.62
Physician Conduct #2	234	4.73	.50	4.30	.55	4.89	.37
Physician Conduct #3	234	4.20	.82	3.66	.82	4.41	.73
Physician Conduct #4	234	4.33	.64	3.89	.51	4.50	.61
Physician Conduct #5	234	4.12	.86	3.69	.73	4.28	.84
Physician Conduct #6	234	4.35	.68	3.81	.64	4.55	.59
Physician Conduct #7	234	4.55	.58	4.09	.46	4.72	.52
Physician Conduct #8	234	4.22	.75	3.72	.79	4.41	.64
Physician Conduct #9	234	4.36	.57	3.91	.43	4.53	.52
Physician Conduct #10	234	4.32	.72	3.77	.68	4.53	.62
Physician Conduct #11	234	4.43	.63	3.89	.51	4.63	.54
Physician Conduct #12	234	4.35	.65	3.80	.54	4.55	.57
Physician Conduct #13	234	4.35	.63	3.84	.51	4.55	.56
Physician Conduct #14	234	4.26	.87	3.55	.83	4.52	.72

Note. Total Population N=234 (Silver Care n= 170 and Space Available Care n=64).

^aSee Appendix B for Health Status and Patient Satisfaction survey items.

Appendix AC

Table AC1

One-Way ANOVA Testing - Patient Satisfaction Survey (Access) vs Enrollment

<u>Survey Item</u>		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Access #1	Between Groups	39.310	1	39.310	110.125 *	.000
	Within Groups	82.814	232	.357		
	Total	122.124	233			
Access #2	Between Groups	181.666	1	181.666	241.853 *	.000
	Within Groups	174.265	232	.751		
	Total	355.932	233			
Access #3	Between Groups	183.530	1	183.530	149.991 *	.000
	Within Groups	283.876	232	1.224		
	Total	467.406	233			
Access #4	Between Groups	137.794	1	137.794	166.694 *	.000
	Within Groups	191.778	232	.827		
	Total	329.573	233			

Note. *p < .001

Appendix AD

Table AD1

One-Way ANOVA Testing - Patient Satisfaction Survey (Availability) vs Enrollment

<u>Survey Item</u>		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Availability #1	Between Groups	95.270	1	95.270	120.774 *	.000
	Within Groups	183.008	232	.789		
	Total	278.278	233			
Availability #2	Between Groups	88.991	1	88.991	102.042 *	.000
	Within Groups	202.326	232	.872		
	Total	291.316	233			
Availability #3	Between Groups	14.972	1	14.972	17.463 *	.000
	Within Groups	198.912	232	.857		
	Total	213.885	233			

Note. *p < .001

Appendix AE

Table AE1

One-Way ANOVA Testing - Patient Satisfaction Survey (Continuity of Care) vs Enrollment

<u>Survey Item</u>		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Continuity of Care #1	Between Groups	107.481	1	107.481	111.886 *	.000
	Within Groups	222.865	232	.961		
	Total	330.346	233			
Continuity of Care #2	Between Groups	103.414	1	103.414	104.666 *	.000
	Within Groups	229.236	232	.988		
	Total	332.650	233			

Note. *p < .001

Appendix AF

Table AF1

One-Way ANOVA Testing - Patient Satisfaction Survey (Financial) vs Enrollment

<u>Survey Item</u>	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Financial #1 Between Groups	50.724	1	50.724	69.710 *	.000
Within Groups	168.814	232	.728		
Total	219.538	233			
Financial #2 Between Groups	56.863	1	56.863	192.323 *	.000
Within Groups	68.594	232	.296		
Total	125.457	233			

Note. *p < .001

Appendix AG

Table AG1

One-Way ANOVA Testing - Patient Satisfaction Survey (General Satisfaction) vs Enrollment

<u>Survey Item</u>		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
General Satisfaction #1	Between Groups	9.710	1	9.710	21.575 *	.000
	Within Groups	104.414	232	.450		
	Total	114.124	233			
General Satisfaction #2	Between Groups	26.013	1	26.013	58.631 *	.000
	Within Groups	102.931	232	.444		
	Total	128.944	233			
General Satisfaction #3	Between Groups	57.375	1	57.375	97.594 *	.000
	Within Groups	136.390	232	.588		
	Total	193.765	233			
General Satisfaction #4	Between Groups	67.262	1	67.262	130.744 *	.000
	Within Groups	119.353	232	.514		
	Total	186.615	233			

Note. *p < .001

Appendix AH

Table AH1

One-Way ANOVA Testing - Patient Satisfaction Survey (Physician Conduct) vs Enrollment

<u>Survey Item</u>		<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Physician Conduct #1	Between Groups	11.159	1	11.159	32.447 *	.000
	Within Groups	79.786	232	.344		
	Total	90.944	233			
Physician Conduct #2	Between Groups	16.260	1	16.260	89.315 *	.000
	Within Groups	42.236	232	.182		
	Total	58.496	233			
Physician Conduct #3	Between Groups	26.128	1	26.128	46.121 *	.000
	Within Groups	131.432	232	.567		
	Total	157.560	233			
Physician Conduct #4	Between Groups	17.226	1	17.226	50.875 *	.000
	Within Groups	78.734	232	.339		
	Total	96.000	233			
Physician Conduct #5	Between Groups	16.453	1	16.453	24.754 *	.000
	Within Groups	154.197	232	.665		
	Total	170.650	233			
Physician Conduct #6	Between Groups	25.088	1	25.088	69.395 *	.000
	Within Groups	83.874	232	.362		
	Total	108.962	233			
Physician Conduct #7	Between Groups	18.098	1	18.098	70.115 *	.000
	Within Groups	59.885	232	.256		
	Total	77.983	233			
Physician Conduct #8	Between Groups	21.953	1	21.953	47.188 *	.000
	Within Groups	107.932	232	.465		
	Total	129.885	233			
Physician Conduct #9	Between Groups	18.056	1	18.056	72.485 *	.000
	Within Groups	57.790	232	.249		
	Total	75.846	233			
Physician Conduct #10	Between Groups	27.124	1	27.124	67.061 *	.000
	Within Groups	93.837	232	.404		
	Total	120.962	233			
Physician Conduct #11	Between Groups	25.378	1	25.378	89.359 *	.000
	Within Groups	65.887	232	.284		
	Total	91.265	233			
Physician Conduct #12	Between Groups	26.579	1	26.579	85.189 *	.000
	Within Groups	72.383	232	.312		
	Total	98.962	233			
Physician Conduct #13	Between Groups	22.999	1	22.999	77.824 *	.000
	Within Groups	68.561	232	.296		
	Total	91.560	233			
Physician Conduct #14	Between Groups	44.350	1	44.350	77.792 *	.000
	Within Groups	132.265	232	.570		
	Total	176.615	233			

Note. *p < .001

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13. ABSTRACT (Maximum 200 words) In October 1993, the Department of Defense (DoD) adopted the program known as TRICARE, which failed to incorporate the 1.2 million over 65 dual-eligible beneficiaries. Consequently, these dual-eligible beneficiaries were forced to utilize their Medicare benefits or receive care at DoD medical treatment facilities on a space available basis. In April 1996, Reynolds Army Community Hospital, Fort Sill, Oklahoma developed the Silver Care Program. The goals of the program were to educate the dual-eligible population on both Medicare and the Medicare Demonstration Project known as Medicare Subvention and to provide health care to beneficiaries who were unable to obtain care through civilian providers. The continuance of this program was dependent on financial assistance from higher command and the possibility of rolling the program into the Medicare Demonstration Project. The purpose of this study was to analyze utilization and costs of inpatient and outpatient services of the dual-eligible populations (N = 2216) from April 1996 - December 1997. The study entailed two analyses: a historical utilization and cost analysis and the employment of a health status and patient satisfaction survey. The first analysis revealed that the total cost of health care for the dual-eligible population was \$6.69 million dollars. The survey results revealed a significant statistical difference, $[F(1, 233) = 282.845, p < .0001]$, in overall satisfaction between Silver Care enrollees and space available beneficiaries, with the Silver Care enrollee being most satisfied. In addition, a backward linear regression was conducted in order to determine predictor variables for the dependent variables: inpatient bed days and outpatient visits. The predictor variables for bed days were health status and patient satisfaction with $F(2, 231) = 9.763, p < .001$, and $R^2 = .078$. The predictor variables for outpatient visits were age, health status and patient satisfaction with $F(3, 230) = 21.479, p < .001$, and $R^2 = .219$.				
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